

Putting PC blades to the test

A Chicago-area healthcare company cites security, cost savings for desktop overhaul.

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Lowenstein

Face-Off: Mobile management

Should companies strictly control employee use of mobile devices? Mark Lowenstein of Mobile Ecosystem and Lucy McQuilken of Intel Capital square off. PAGE 35.



McQuilken

NETWORKWORLD

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WiderNet

The CEO's sidekick

All the world's a stage for demo guy Jim Grubb.

BY PHIL HOCHMUTH

Cisco CEO John Chambers often gets topical during his trade show keynotes. At a recent event, he spent several minutes outlining a litany of IT headaches facing the U.S. health-care industry, and of course, some of Cisco's high-tech aspirin.

"And now I'm going to ask Jim Grubb, my friend and business partner for many years, to come up here and show us, in less than 10 minutes, how all these technologies I've talked about today are going to solve all the problems in the healthcare industry."

See Grubb, page 12



Jim Grubb, Cisco's chief demo officer, on stage with John Chambers, right.

Router flaw sparks battle

Cisco and critics spar over what constitutes responsible disclosure.

BY ELLEN MESSMER AND PHIL HOCHMUTH

LAS VEGAS — Researcher Michael Lynn quit his job at Internet Security Systems last week, then defied ISS and Cisco by revealing that unpatched Cisco routers can be hacked by a buffer-overflow exploit. Until then, corporate network managers were largely unaware of the risk.

Cisco and ISS had known for months. And it's feared that hackers knew, too, as Chinese bulletin boards are said to have contained at least some knowledge of the vulnerability.

The confluence of events — all coming to a head last week at the Black Hat security conference — has reignited the long-smoldering debate over what constitutes responsible disclosure of security risks. Cisco insists that Lynn acted both irresponsibly and illegally, and obtained a court order barring him and show organizers from further disclosures.

"The actions against Mr. Lynn and Black Hat were not based on the fact that the flaw was identified, rather that they chose to address the issue outside of established industry practices and procedures for responsible disclosure," Cisco said in a statement, adding what Lynn did "was not in the best interest of protecting the Internet."

See Black Hat, page 14

► Future of firewalls, VoIP security, also draw attention at Black Hat. PAGE 14.

Federal mandate to boost IPv6, but . . .

BY CARA GARRETSON

The federal government's mandated move to IPv6 over the next few years is expected to also spur demand for the upgraded protocol in portions of the private sector.

However, many enterprise network executives, with no equiva-

lent of a government mandate to force adoption, will still need a good reason to make the switch, experts say.

The Office of Management and Budget (OMB) plans to set policy soon that will compel all federal agencies to upgrade their network backbones to IPv6 by 2008,

with the expectation that upgrading applications and other components will follow. The OMB is charged with supervising the effectiveness of programs, policies and procedures set by agencies in the executive branch, among other things.

The Department of Defense required its own upgrade to IPv6 by 2008 and is working with the protocol. But other federal agencies have little experience with or interest in IPv6, even though the protocol is 10 years old and touted by some

► Columnist Johna Till Johnson opines that IPv6's time has yet to come. PAGE 31.

See IPv6, page 53

The life and times of an RFID chip

Born in Taiwan, raised in California, 'Chippy' finds his true calling at McCarran Airport in Las Vegas. Page 41.



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Toshihiko Suda

Senior Manager, *Nissan Motor Company, Ltd.*

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The life and times of an

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IBM x336
server packs a punch. **Page 22.**

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Google serves up an enterprise search appliance. **Page 44.**

Face-Off: Mobile usage



Should companies strictly control employee use of mobile devices. Mark Lowenstein of Mobile Ecosystem and Lucy McQuilken of Intel Capital square off. **Page 35.**

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Multimedia Exchange

Multimedia Editor Jason Meserve writes, "Podcasters that were taking advantage of the liberal bandwidth utilization policy over at Apple's .Mac hosting service are going to have to look elsewhere. Apple has now set limits on the monthly bandwidth a given account

can use."

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Case studies

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A Wider Net

If you've missed any of our weekly stories that go beyond the speeds and feeds of the network and IT industries — such as a look at the nation's elite science and technology high school or stories of married net pros — check out the Wider Net archive.
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Online help and advice

Nutter's Help Desk

Help Desk guru Ron Nutter aids a user who asks: "For the average home user, how safe is having a simple NAT box between your Internet connection and your PC or network?"
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Small Business Tech

Barracuda boxes spam. Columnist James Gaskin examines

Barracuda Networks' appliance model for catching spam.
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Home Base

Sandra Gittlen looks for suggestions on how home-based business owners can best strike a balance between their personal and professional lives.
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Seminars and events

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COOLTOOLS

The Disc Stakka CD & DVD Manager allows users to search for a disk by typing in keywords. **Page 34.**



NEWSbits

SANS: 'Net vulnerabilities up 11%

■ The SANS Institute last week reported 422 new Internet security vulnerabilities discovered during the second quarter, an increase of nearly 11% from the first quarter. Weaknesses in popular back-up software highlighted the report (www.networkworld.com, DocFinder: 8257). Two back-up programs — one from Veritas, acquired last month by Symantec, and the other from Computer Associates — made the Institute's list of top 20 new vulnerabilities for the quarter. Other new vulnerabilities were found in music-downloading programs iTunes from Apple and RealPlayer from RealNetworks. In both cases, flaws allow for bad playlists or music files to be downloaded that contain malware. Also on the list were Web browsers Internet Explorer and Firefox.

Microsoft targets high-end users

■ Microsoft plans to increase its investment in enterprise-class products with new high-end — and higher-priced — versions of Windows and Office that the company plans to release in the next several years, CEO Steve Ballmer said last week at the company's annual Financial Analyst Meeting in Redmond, Wash. He said Microsoft will offer an enterprise version of Vista (see related story, page 10), the next edition of Windows, plus a new version of its productivity suite, Office Premium, aimed at better serving enterprise markets. Microsoft also plans an Office Server product with a new premium client-access license that will include system management, security and e-mail offerings for high-end customers, Ballmer said. He also said Microsoft plans server and tools offerings for the high-end technical computing market, which he acknowledged is "mostly a Linux world today."

CA to cut 5% of workforce

■ Computer Associates plans to cut 800 positions worldwide, about 5% of its workforce, in a restructuring effort aimed at saving \$75 million annually. CA will finish most of the worldwide layoffs by year-end,

COMPENDIUM

Blog explosion

Dave Sifry, the guy behind the Technorati blog search engine, last week posted some stats: "Technorati is now indexing over 14 million blogs, with about 80,000 new blogs created every day. That's about a new blog created every second! And there's about 900,000 new posts every day, which means about 37,500 posts per hour that we're indexing." Find out more at www.networkworld.com, DocFinder: 8256.



MICHAEL SLOAN

{quote of the week}
{quote of the week}
{quote of the week}

"Based on our discussions, both companies felt that it was premature to present this research at this time."

Cisco spokesman explaining the decision to scuttle an Internet Security Systems presentation on how to hack IOS router software. The scheduled presenter quit his ISS job and delivered a version of the address anyway.

the company said.

The move echoes a similar announcement in September, when CA initially cut 800 jobs to reduce its operating costs. The Islandia, N.Y., company finished its fiscal 2005, which ended in March, with 15,300 employees — the same number it had a year earlier, despite its September restructuring. The job cuts were offset by the 400 employees CA gained in its October purchase of Netegrity and by the 350 additional employees CA hired in India.

Sun to lay off 1,000 employees

■ Sun expects to lay off about 1,000 employees at a cost of about \$100 million as part of the company's ongoing cost-cutting strategy, the company said last week. There was no word from Sun where in its operations the job cuts are likely to fall. Sun last announced significant job cuts in April 2004, when it began to lay off 3,300 staff. The company increased that job cut number to 3,500 last October. Sun employs about 35,000 people, according to its Web site.

Telco snaps up Integral Access

■ Telco Systems, a provider of transport and access

TheGoodTheBadTheUgly

In the money. Three of the 10 largest venture-capital investments made during the second quarter were in network or telecom companies, continuing the renewed interest among venture capitalists in funding a sector that has lagged dramatically in the last few years. The big winner among network companies was VoIP service provider Vonage, which attracted \$200 million in its sixth financing round to date, according to the MoneyTree Report, a quarterly survey performed by PricewaterhouseCoopers, Thomson Venture Economics and the National Venture Capital Association.

< Customer service traffic jam. Despite all the money and time that has been put into installing CRM and other such technologies in recent years, poor customer service is the main reason people switch from one service provider to another, according to a survey of 2,000 consumers in the U.S. and the U.K. by consulting firm Accenture. When asked to describe the typical customer service experience, 54% likened it to driving in slow city traffic and having to take many alternate routes to the intended destination.

Russian spammer killed. Russian news outlets last week reported that the country's most notorious spammer was found murdered in his apartment. The 35-year-old man headed a group of English-learning organizations known for their aggressive Internet advertising tactics. Spamming is not illegal in Russian, according to news outlet MosNews. It is not known yet what if any role the victim's spamming activities played in the killing.

systems for IP and TDM networks, last week announced the acquisition of privately held Integral Access, a developer of IP-based multi-service access platforms for converged voice and data. The acquisition will enable Telco Systems to offer service providers an integrated access system designed to migrate carriers from TDM-based services to IP/MPLS-based voice and data services. Integral's PurePacket system supports softswitch VoIP infrastructures and legacy Class 5 switches, and can be deployed in central offices and multi-tenant units, and on customer premises.

Terms of the acquisition were not disclosed. Integral, which has accumulated \$113 million in venture funding since its inception in 1996, is based in Chelmsford, Mass. Telco Systems, a wholly owned subsidiary of BATM Advanced Communications of Israel, is headquartered in Foxboro, Mass.

Teens and screens

■ Researchers at the Pew Internet & American Life Project say nine out of 10 kids ages 12 through 17 are online, up from about 75% in 2000. Comparatively, the study says 66% of adults use the 'Net. The study found about half of teens who have online access go on the Internet daily, up from 42% in 2000. Three-quarters of teens surveyed use instant messaging, compared with 42% of online adults. About half of the teens have broadband. Pew contacted 1,100 teens by phone for the survey.

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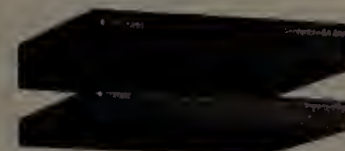
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WLAN vendors make summer splash

BY JOHN COX

Most of the news coming out of the wireless LAN industry this summer has been of the product enhancement variety, but this week's debut of start-up Bountiful WiFi is an exception.

The year-old company's first product is an 802.11b/g router that the company says can deliver two to four times the range of conventional devices. The Bountiful Router combines an access point with a four-port Ethernet switch; a WAN port; and a battery of security options, including Wi-Fi Protected Access with 802.1X and RADIUS authentication.

One key differentiator is an FCC-certified 2.4-GHz 802.11b/g radio running at 840 milliwatts. That compares with a maximum of 80 milliwatts for many rival products. Secondly, the radio, based on an Atheros chipset, uses a group of algorithms, software code and discrete radio frequency filtering components to create a clean, consistent and powerful signal.

A conventional 802.11b/g access point is generally considered to have a range of about 300 feet, though the data rate might be 1M bit/sec at that distance. Bountiful's router can reach 1,200 feet, according to company founder and CEO David Egbert. Citing "unscientific tests," he says the router has maintained an 802.11g data rate of 48M bit/sec at 600 feet.

The Bountiful Router costs \$625.

Symbol, Cisco and more

In other wireless news, Symbol



Symbol's 54M bit/sec CB3000 Client Bridge links client devices that lack PC card or PCI slots to wireless LAN access points. Shown connected to the bridge here is an IBM point-of-sale terminal.

Technologies has released a 54M bit/sec 802.11g bridge that can be plugged into by Ethernet devices that can't be fitted with a WLAN adapter, such as point-of-sale terminals, medical equipment, time clocks, scales and printers. The new CB3000 Client Bridge then becomes, in effect, a wireless network interface card, making a connection to the nearest access point.

The CB3000 can support up to 16 Ethernet devices through a separate hub, which would plug into the bridge's port.

An earlier model, released in 2001, used only an 11M bit/sec 802.11b radio, supported up to eight clients, and lacked the newer security standards.

The price of the CB3000 is \$285.

Separately, Cisco announced it is now shipping a new high-end

WLAN controller, the Cisco 4400. It's the first WLAN controller jointly developed by engineers from Cisco and its recent acquisition, Airespace.

The model 4402 has two Gigabit Ethernet ports and works with 12, 25 or 50 lightweight access points. The 4402 controller starts at \$9,995, for up to 12 Cisco 1000 Series access points.

The model 4404 has four Gigabit Ethernet ports, and works with as many as 100 access points. It's priced at \$35,000. Both can be fitted with an optional redundant power supply.

Cisco plans to introduce a modular version in the fall that includes Airespace-developed code and slots into the Catalyst 6500 LAN switch.

Also new is software from Meru Networks to improve wireless VoIP calls on the company's WLAN controllers and thin access points. The Meru Voice Service Pak is an optional pro-

gram with three new voice features, aimed at dense enterprise deployments of WLAN phones.

First, you now can limit the number of WLAN phones that connect to a given access point to preserve call quality. Calls over that number can be shunted to another access point or get a busy signal.

Second, the software for the first time automatically will balance call traffic among available access points. The software also can do dynamic error correction, so speakers won't experience gaps or noises from packet loss.

The Voice Service Pak is priced starting at \$20 per voice client.

New software also is on the way from NetMotion. The company this week plans to launch Version 6.5 of its Mobility XE software, which provides a VPN for mobile users on WLANs and cellular networks. The release includes code that detects images in an HTTP stream to a client device, and

then compresses them to speed the download. The degree of compression can be set at the administrator's screen.

Another change is increasing the options and actions that can be set through the Policy Management Module. For example, the image-acceleration level can be set based on variables such as the version of the client device or operating system, or both.

Pricing is unchanged, starting at \$15,000 for 100 users, with the Policy Management Module priced at \$6,500. ■

Correction

■ In the chart appearing with the story "Can't get no satisfaction" (July 25, page 46), the factor of autonomy in the satisfaction list should have been labeled as No. 6 in the list.

Start-up to index e-mail, other unstructured content

BY DENI CONNOR

A new company started by a pair of storage industry veterans last week announced it is readying an appliance that indexes e-mail and other unstructured information so it can be searched and recovered more quickly.

Index Engines is addressing the growing amount of data stored on computer networks and the need to have a good system for accessing data under new regulatory guidelines.

The Enterprise Strategy Group estimates that as much as 80% of the data on the network is unstructured and Gartner says this will increase from nearly 4 million terabytes today to as much as 15.2 million terabytes in 2009.

The Index Engines Appliance sits on a network between the back-up disk or tape and the storage-area network, where it inspects and indexes Microsoft Exchange, Word and PDF files as they are backed up.

"As you back up every night, data flows through our appliance, which indexes it at the speed of the back-up," says CEO Tim Williams, who started Index Engines along with CTO Gordon Harris in 2003. They co-founded a storage company called CrosStor in 1990, which they sold to EMC 10 years later.

According to Index Engines, its appliance can



The Index Engines Appliance sits between the back-up disk or tape and the SAN to index Exchange, Word and PDF files as they are backed up.

process e-mails and attachments at a rate of 3.5 million words per second. The box will support as many as 500 simultaneous user queries per second, the company says. One model is designed to index as many as 4 million files, the other 16 million. Appliances can be clustered to achieve higher scalability.

The Index Engines Appliance differs from e-mail archiving software from EMC and Symantec in that it only indexes files and e-mails and doesn't process rules and policies that govern where the data is stored. Unlike those vendors with integrated policy-based software, Index Engines supplies APIs to let customers build rules-based processes if they need them.

The appliance works with IBM's Tivoli Storage Manager, Symantec's Veritas NetBackup and EMC's Legato Networker back-up software. Bundled with the Exchange e-mail module, the appliances start at \$40,000 and will be available in September. ■

BellSouth software to safeguard DSL users

BY JIM DUFFY

BellSouth last week unveiled Internet security software for small-business and residential DSL users.

The company's Internet Security offerings consist of three products. One is designed to keep viruses, worms and Trojans off customers' computers. Another detects and removes more than 60,000 spyware invasions. Also offered is firewall software to inhibit hacking and intrusion.

BellSouth FastAccess DSL customers can order individual software products for \$2.99 per month, or all three for \$6.99 per month. For customers with two to four computers, individual products are \$4.99 per month, or \$11.99 per month for the entire suite.

Business customers with up to 10 computers can purchase individual products for \$12.99 per month, or the entire suite for \$24.99 per month. ■



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Microsoft offers look at new Vista

BY TIM GREENE

Corporate developers eyeing Microsoft's upcoming Vista operating system should test it against their current applications before making any deployment decisions, experts say.

Microsoft last week released a beta version of Vista to 20,000 corporate and commercial software developers.

The best thing corporate application developers can do is check whether their current applications actually work on Vista, says Michael Cherry, lead analyst for Windows at Directions on Microsoft. While in theory they should, it's important to check the basics. "The question you want to answer is, 'Does it run still?'" Cherry says.

If not, potential users will want to consider the cost of tinkering with applications so they will run on Vista, says Peter O'Kelly, a senior analyst with Burton Group. While it's relatively efficient to re-image software on a PC remotely, it can be time consuming and costly to retool individual applications. "You don't want to touch every desktop," O'Kelly says.

Developers also should examine new APIs for graphics and Web services that Microsoft says make development easier. Cherry says developers should assess whether it is worthwhile to use the APIs, called Windows Presentation Foundation (formerly Avalon) for graphics and Communications Foundation (formerly Indigo) for Web services.

"You might have to do some coding changes to your applications and evaluate whether it's worth the effort," he says. If extensive rewriting is needed, it might be better to stick with the current operating system or push Microsoft to alter its code, he adds.

Potential users also might want to compare the software on PCs with more and less processing power, O'Kelly says. For example, Presentation Foundation will work on PCs that currently run Windows XP, but some of Vista's new graphic effects might not come through without more powerful processors. "It works better on leading-edge hardware," he says.

Otherwise, the quality of the new effects will be reduced somewhat. "If you have a PC that was created in the last couple of years, you don't have to worry about it," he says.

Vista also includes a security change that defaults to give new users no more privileges than necessary. Current Windows platforms lump new users in administrative groups, but Vista will cut that back to minimal privileges unless more are specifically granted. "This is well established, good security practice," Cherry says. Again, potential users should test whether the new security feature gets in the way of business goals. "You want to make sure that with this implementation your application is still working."

The beta doesn't include planned changes to the look of Vista compared with XP, O'Kelly says. These changes will give Microsoft a more Mac-like look and feel. For example, some windows will appear to be translucent, so users can see what's behind them.

"It's the same kind of eye candy MacOS has had for a while," he says. And Vista will support virtual items — the ability to have a file appear in multiple folders even though there is just one instance of the file stored on the PC. This is something Lotus Notes and Microsoft Outlook already can do.

Vista's release is scheduled for next year. "The vast majority of enterprises are going to wait until the first service pack," O'Kelly says.

Microsoft should hope more customers upgrade to Vista than the 15% that upgraded to Office 2003. "If it's like that for Vista, it's going to be a long decade for Microsoft," he says. ■

MCI boosts its SLAs

BY DENISE PAPPALARDO

MCI is improving its Managed LAN service-level agreements by offering customers better repair time and availability guarantees.

The carrier says it guarantees it will repair a Managed LAN service outage within 3½ hours in the U.S. Previously, MCI offered customers a four-hour repair guarantee.

"MCI's SLAs are unique because all of the SLAs are generally available," says Melanie Posey, an analyst at IDC. "A lot of other service providers offer these types of guarantees, but more on a case-by-case basis."

Earlier this year, MCI announced similar SLAs for its Managed WAN services. Customers using MCI for both Managed LAN and WAN services have a single consistent SLA across both network services, says John Schultz, senior director of managed network services at the carrier.

"It's a competitive differentiator that MCI is offering [time-to-repair] guarantees for both its Managed LAN and WAN services," Posey says.

For customers with LANs in 21 countries outside the U.S., MCI guarantees it will repair outages within four hours. The countries

Higher-level service

Here's a look at the old and new service-level agreements for MCI's Managed LAN service customers.

Guarantee	Old	New
Time to repair in U.S.	Mean time to repair of 4 hours	3.5 hours
Time to repair in select global areas	Mean time to repair of 5 hours	4 hours
Time to repair in all other parts of the world	Mean time to repair of 8 hours	6 hours
LAN switch availability	No previous SLA	99.5% for workgroup and 99.95% for core switches
Change management	72 hours	24 hours

covered by this SLA include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Italy, Japan, Luxembourg, Netherlands, Norway, Singapore, South Korea, Spain, Sweden, Switzerland and the U.K.

Customers with Managed LAN services in other parts of the world receive a six-hour time-to-repair guarantee.

MCI also has added performance guarantees for LAN device availability for workgroup and core LAN devices. For the first time, MCI says it guarantees at least 99.5% availability for all workgroup LAN switches and 99.95% for all core LAN devices.

The service provider offers a guarantee for customers with third-party maintenance contracts. For example, if a customer has a maintenance contract with Cisco, MCI is essentially backing up that agreement with a six-hour time-to-repair guarantee.

It's the first time that MCI has offered a device-availability and third-party time-to-repair guarantees for its Managed LAN service customers.

The improved SLAs are available to all new Managed LAN service customers. The SLAs do not automatically apply to current customers, although they can add the SLAs to their contract during its next renewal period. ■

Bill to update Telecom Act

BY JIM DUFFY

A U.S. senator last week introduced legislation that some say is a first step in reworking the Telecommunications Act of 1996.

Sen. John Ensign (R-Nev.) submitted the Broadband Consumer Choice Act of 2005, a bill that seeks to ease regulation on service providers as they invest in IP-enabled broadband services such as IPTV. Carriers are looking to offer high-speed, IP-based video services such as IPTV in an effort to better compete with cable companies offering VoIP services. Telcos and cable providers are on a collision course as they look to control the converged services — voice, video and data — access pipe into homes and businesses.

Supporters say the Ensign bill is the first significant update to U.S. telecom law since the 1996 Telecom Act, which sought to open incumbent networks to competitors. Some lawmakers are considering rewriting or even dismissing the 1996 bill as communications technology advances and voice, video and data convergence takes hold.

"The Ensign proposal would bring telecommunications law up to date so that consumers can make their own decisions in the marketplace free of the

heavy hand of government," said Herschel Abbott, BellSouth vice president of Governmental Affairs, in a statement. "It will speed the deployment of competitive video services and provide, at last, vibrant competition in video."

"We commend Senator Ensign for crafting legislation that seeks to promote competition and innovation and treats like services alike," said Kyle McSlarrow, president and CEO of the National Cable and Telecommunications Association. "While there are specific provisions we would want to work on with Senator Ensign, this is an important and constructive step forward."

Key aspects of the bill are:

- The elimination of the requirement that video service providers obtain a cable franchise agreement to provide video service.
- Establishment of federal consumer protection standards to ensure timely and quality carrier service.
- Assured consumer access to Internet-based phone service.

Ensign is seeking support for his bill from other lawmakers. He gave no timetable for passage or moving the bill forward. ■

◆ **Changes to the Windows kernel mean that some software might need to be rewritten for the 64-bit version, angering some users. See story page 17.**

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Grubb

continued from page 1

Everyone's had a demanding boss at some point — but c'mon.

Anyone who has seen Chambers speak a few times knows the routine: part state-of-the-industry address, part sales pitch, part revival meeting. And then there's the product demo. This is what Grubb, Cisco's chief demonstration officer, has handled for the past eight years, at as many as 60 events per year.

Much of the schtick involves Grubb showing off new technology while Chambers comments and makes gibes:

Are you nervous, Jim? You seem a little tense.

This must not fail, Jim, because that'll be embarrassing for me and you.

It's OK if you mess up ... I'll just fire you.

Grubb, 43, always appearing on cue with an "oh, gosh, me?" smile, fills the stage with his physical presence and contagious laugh. He says the jokes and big-bad-boss warnings are all part of the act.

Setting the scene

The demos usually involve Chambers and Grubb acting out a real-life scenario — a doctor's office, a retail store, a construction site — where Cisco technology is featured.

"We write jokes and certain lines," Grubb says. "But we don't hard-script most of it."

Grubb has demoed Cisco technology all over the world. Audiences have included Mikhail Gorbachev, former leader of the Soviet Union; former Secretary of State Madeleine Albright; President Vicente Fox of Mexico; and former Vice President Al Gore.

But Grubb doesn't know much about stage fright. He studied music at the University of Massachusetts at Lowell, concentrating on voice performance, and took part in community theater for many years.

Tinkering and invention are also part of Grubb's background: his granduncle invented the lock boxes that real estate agents use to store house keys in homes, and his mother ran the family business, selling the devices part time when she wasn't teaching school. She purchased a Northstar Horizon PC, which Grubb used to teach

himself programming, when he wasn't fooling around with his ham radio set.

After leaving college to start his own computer company, Grubb ended up working at Digital Equipment Corp., working his way up from order processing to systems engineering, giving product demos on sales calls. During a visit to the U.S. Postal Service, a major Digital account in the late 1980s, he discovered it was using routers "from this little company called Cisco" to tie together its VAX network.

This led Grubb to the West Coast and a consulting engineer-

"Following John around the world has been like getting an MBA; I'm like a fly on the wall in so many customer meetings. ... And it's just a lot of fun. I get to play with all the toys."

Close calls

Having access to the latest network technology — the toys — is not all fun and games. Grubb says he works constantly with his staff to boil down complex network technology into an understandable 15-minute presentation, often working with gear fresh from Cisco's labs. And as any network pro knows,



Jim Grubb (right) demonstrates the throughput of Cisco's CRS-1 router with Senior Vice President Mike Volpi.

ing job at Cisco. Eventually, he moved up to manage some product lines. In 1996, he did his first demo with Chambers: an IP video demonstration "that was incredibly complex, with a rotating stage, all these plasma screens — it was ridiculous, but we pulled it off."

After that, he got a call from the CEO's office.

"It wasn't a direct invite," Grubb says, "because business units are not supposed to poach people from inside the company. They asked if I knew anyone who might be able to help John give demos and presentations." Grubb says it took him a few days to realize what they were asking. Since then he's been on the road with Chambers.

"Some things are the same, like the hotels and the steam-tray food, but everything else is always different," Grubb says.

Murphy's Law and Moore's Law often clash.

Recalling some of his closest calls, Grubb describes a wireless technology demo he devised two years ago for an audience of CEOs at a high-tech summit held at a tony Pawleys Island, S.C., resort, "where the steam-tray food was actually good."

The demo showed how RFID and 802.11 gear could interact. "We set that whole network up, and we rehearsed. Then the next day, it just stopped working," Grubb says. After hours of troubleshooting, he was about to give up. But the next morning, on demo day, it all came back to life.

The only explanation had to do with the King of Jordan, who was in the audience, Grubb says. The entire hotel was under heavy security and surveillance, "and we thought the FBI was

using some sort of ultrawide-band communication devices, because you can't use a radio scanner to listen in to those things," he says. The G-men's high-powered wireless gear drowned out Grubb's lower-powered 802.11 and RFID demo, the theory goes.

But onstage flubs are rare. Grubb's discipline is fault tolerance and security.

"We put a lot of effort into making sure things don't break," he says.

Grubb and his staff create an entirely closed LAN for their network demos separate from the convention center or hotel facilities hosting the event. PCs and servers are required to have a back-up machine that can instantly take over in case of a lockup. Load balancers and redundant links are standard.

He learned many of these lessons the hard way, of course.

Cisco officials were at a ritzy, golf-centric executive event in Spanish Bay, Calif., where Grubb and Chambers demonstrated VoIP technology. Chambers, holding a digital phone set, was to connect to Grubb, who was using VoIP. "When John picked up the phone, there was no dial tone — PacBell had just come in and disabled that extension on the hotel's PBX," Grubb says.

Grubb now takes his own mini PBX on the road when demonstrating interoperability between VoIP and TDM networks.

Nothing's doctored

As for the Cisco gear that takes center stage in these demos, Grubb says, "We do some hardening of things," in order to ensure the box on display runs smoothly for the audience. But he insists the gear is not doctored, dressed up or dumbed down for show.

"We don't do anything to the products a customer can't do in real life," he says.

Even with his unique background in stage performance and networking, Grubb says there's always stress.

"There's plenty of it," he says. "You're working at odd hours, just like any network professional."

Grubb and his staff sometimes have only a few days, or even a few hours, to set up a demo. Chambers sometimes does not know the demo's content until the day it occurs.

"The closest John has ever come to getting angry with me was an event in Japan," Grubb says, where he and Chambers were again demonstrating that tricky VoIP technology. Chambers was talking into an IP phone, linked to the public address system. The PA system worked, but Chambers couldn't hear his own voice on the handset. Grubb recalls Chambers being frustrated, thinking that the demo made the technology look rigged.

"I was trying to convince him that we can hear him through the PA," Grubb says. After a brief back-and-forth, Grubb recalls Chambers saying, "Jim ... let me make a suggestion" — to use another handset.

"Sometimes I have to remember that it's his show, not mine," Grubb says.

Those who have seen Grubb in action say they look forward to the demo portion of a Cisco event.

"The way he does presentations, with his timing and humor, he really pulls them off well — better than most people I've seen," says Jim Wilson, network services manager for Henderson, Nev. Wilson has watched Grubb at the last five Cisco Networkers customer events. "He does steal the show [from Chambers] sometimes."

"Some CEOs can have a large ego; they can be demanding," Wilson says. "To be up there like [Grubb] is, in front of thousands of people and your boss, and to know that everyone's watching if you screw up — it looks like a tough job."

At the most recent Networkers Show, over a lunch of steam-tray chicken and vegetables, Grubb denied having the toughest job in networking.

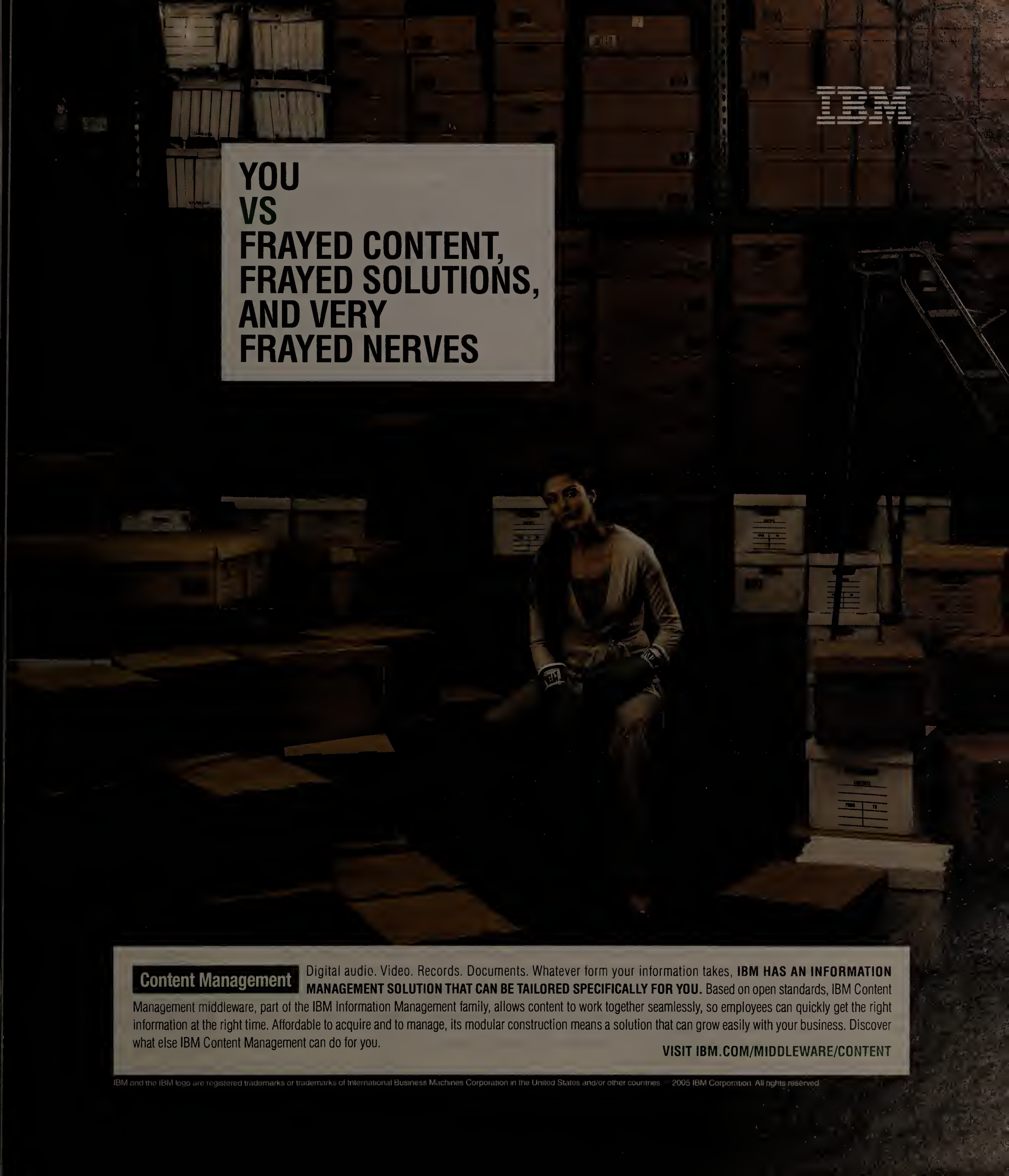
"I wouldn't say it's the easiest either," he says. "The nice thing is that John trusts me and my staff enough to let us go off and build these things, so he can worry about running the company." ■

nww.com

Demo man

Never seen Jim Grubb in action? Check out this video of him center stage.

DocFinder: 8253

A woman with long dark hair, wearing a light-colored long-sleeved shirt and dark pants, is sitting on a stack of cardboard boxes in a dimly lit warehouse. She is wearing white boxing gloves with the 'IBM' logo on them. The background is filled with tall stacks of cardboard boxes, creating a sense of a vast, cluttered storage space. The overall mood is one of exhaustion or frustration, which is reinforced by the headline text.

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Black Hat

continued from page 1

Lynn maintains that he acted properly, a position that garnered backing from security experts and conference attendees.

"I think I did the right thing," he says. "I didn't disclose any vulnerabilities that were new. The important thing is that vulnerabilities can be seriously exploited." The fact that Cisco source code was stolen last year makes the chances of an exploit more likely and that heightened risk demanded early disclosure, Lynn says.

That sentiment was widely held last week.

"Cisco should have told us ear-

lier about this because it clearly makes patching a high priority that has to be done," said Joseph Klein, senior security analyst at Honeywell Technology Solutions.

The shellcode flaw and Cisco's reaction to it are "definitely a source of concern," said Joe Moore, director of IT for the state of Arizona, auditor general's office. "There is a lot hanging on what kind of equipment you have facing the public network. ... If you have a flaw brought to light, I don't think Cisco should have a problem sharing that flaw, especially if it's already been taken care of, like Cisco says it has... as opposed to trying to hush up the person who exposed the flaw."

John Parsons, manager of global telecommunications and networks at Kodak, says the company's router engineers keep its Cisco equipment current with updated patches. Parsons expressed some sympathy for Cisco's position in going after Lynn. "Maybe Cisco wanted to make sure they had the proper patches or workarounds ready for this, which I think is reasonable," he says.

On Friday, Cisco was to have posted a security advisory related to the issue of remote exploits of Cisco routers at www.cisco.com/go/psirt.

ISS and Cisco had planned to have Lynn talk about this new type of potentially devastating

"If you have a flaw brought to light, I don't think Cisco should have a problem sharing that flaw. ... as opposed to trying to hush up the person who exposed the flaw."

Joe Moore, director of IT for Arizona's auditor general's office

buffer-overflow attack against unpatched routers, but canceled at the last minute, saying more research was needed.

However, Lynn broke ranks, defiantly speaking out on the subject for what he says were reasons of national security.

He was promptly sued by ISS and Cisco, which claimed his actions were illegal. Lynn acknowledged in a settlement reached Thursday that he had broken confidentiality agreements and by week's end he and his lawyer were delivering sensitive materials and software related to the router exploit into the hands of Cisco lawyers.

In addition to Lynn, Cisco sued the Black Hat conference and launched a bizarre late-night purging campaign that had a team from Cisco physically cutting 15 pages of sensitive information about the exploit out of the conference proceedings and destroying conference CDs.

Talk of the confrontation dominated the conference (read columnist Mark Gibbs' take on Lynn's outburst, page 54). Security researchers expressed concern that what happened to Lynn will result in chilling security research that sometimes simply involves sharing ideas.

Johnny Long, penetration tests at Computer Science Corp., presented a live demonstration on how to use advanced search capabilities in Google as a hacking tool to uncover sensitive information inside corporate networks. He noted that Google is taking such information to heart by quietly beginning to block some search attempts, which he called a step in the right direction.

"Actually, I'm not being sued by Google," Long joked, but said the furor over the Cisco router exploit is leaving a huge impression on researchers who might become more cautious about discussing problems they uncover.

In one of its legal filings against

Lynn last week, Cisco claimed the method of reverse engineering that he used to uncover the buffer-overflow exploit is illegal — a contention that drew skepticism from some experts.

"As long as reverse engineering is for research purposes, and no one is trying to make money off it, it's not illegal," said Marc Maiffret, co-founder and chief hacking officer at eEye Digital Security, a vulnerability and research and security vendor.

Legal issues aside, Cisco's moves against Lynn send the wrong message to the security community, Maiffret said. "Security researchers aren't going to make the stuff public if Cisco is just going to come back at them with legal action."

Frank Dzubeck, president of Communications Network Architects, said he doubts that an attack based on an IOS flaw would cause widespread damage to the Internet because products from Cisco's rival Juniper have a large presence in carrier backbone networks.

But vendors do need to be watched by other vendors, he added.

"It's a good thing to have watchdogs in this business and I think Cisco has an issue with being watched," Dzubeck said. "Microsoft has gotten used to this. They actually rely on other people to tell them what it's doing wrong, and they're confident in those people. In Cisco's case, they're still saying that we know what we're doing better than anyone else because we created it and we own it." ■

Wild week at security conference

Controversy erupts at Black Hat over disclosure of Cisco router vulnerabilities.

Monday

- Cisco, ISS tell show organizers to cancel router security presentation.
- Cisco employees use razorblades to cut 15 pages from 2,500 documents; also destroy show CDs.

Wednesday

- Cisco, ISS separately field press questions about cancellation; deny government pressure.
- ISS researcher Michael Lynn quits job before demonstrating what he said are ways to launch a buffer-overflow attack against unpatched Cisco routers.
- Cisco, ISS acquire court injunction against Lynn and conference organizers.

Tuesday

- Word spreads about cancellation, along with rumor of involvement by Department of Homeland Security.

Thursday

- Parties reach settlement whereby Lynn agrees to reveal no more details.
- Lynn tells reporters he "did the right thing."

Friday

- Cisco was expected to post a security advisory at www.cisco.com/go/psirt.

Black Hat event highlights RFID and VoIP security threats

Conference attendees also get a lesson in de-perimeterization.

BY ELLEN MESSMER

LAS VEGAS — The Black Hat conference — an annual event where security professionals get in touch with their inner hacker and vice versa — has for nine years been a stage for detailing new security exploits and sharing visions of the future.

News last week was dominated by the saga of security researcher Michael Lynn, who defied his employer Internet Security Systems by delivering a forbidden presentation on hacking unpatched Cisco routers — and was subsequently sued by ISS and Cisco. But Black Hat had much more, including:

- Phil Zimmerman, the fabled inventor of Pretty Good Privacy (PGP) encryption for e-mail, unveiled plans to bring encryption to VoIP phones.

- The Jericho Forum, a group of multinational corporations that want to better secure e-commerce by pushing security controls further into networks and away from the perimeter, showcased technologies it said represent that vision.

- Throughout the conference, security experts showed how easy it could be to disrupt wireless networks or pillage data repositories.

Among the darker demonstrations, Kevin Mahaffey, director of development at Flexilis, operated a radio-based voltage-controller oscillator that acted as a disrupter that could shoot a frequency beam at an RFID reader. As it emitted a shrill whine, the RFID disrupter jammed the reader or eliminated a comprehensive reading of RFID tags, which in actual use could play havoc with supply-chain operations using the tags.

"This can take away the ability to read tags reliably," Mahaffey said. He added that there also are ways to sniff RFID tags, clone the information and

See Conference, page 16

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Did Lynn do the right thing?

Weigh in on this week's Cisco/ISS controversy in our online forum.

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Avaya bolsters automated voice apps

New software designed to help integrate voice recognition, Web programs and databases.

BY TIM GREENE

Avaya this week is announcing two software platforms to create and execute applications that answer phones and respond to spoken words to deliver information sought by callers.

The Call Portal and Dialog Designer software works with PBXs and peripheral speech-processing programs, as well as with business databases to support

custom call applications. The company plans to announce them at the SpeechTek show in New York.

Call Portal could control the call flow of an application that checks the incoming caller ID, answers the phone with a greeting that uses the name of a person associated with that ID, authenticates the caller's voice against a voice-print database, retrieves the informa-

tion the caller requests and then performs a transaction as directed by the caller.

To do all this, Call Portal communicates with Web servers and databases via media resource control protocol (MRSP), a standard that makes the software more flexible than platforms that use proprietary interfaces, says Elizabeth Herrell, vice president of Forrester Research. Compet-

itors include Genesys Telecommunications Laboratories, Voice-Genie Technologies, Nortel and Intervoice.

Voice-recognition software company Gold Systems in Boulder, Colo., plans to use the new Avaya platforms to create packaged applications for sale to businesses, says Herb Morreale, Gold's CTO.

He says the company built an application that tapped Amazon.

com's Web services to access customer information via voice. "With Dialog Designer, that is very easy to do as a programmer," he says.

Call Portal runs on Red Hat Linux Enterprise 3.0 and can be accessed via the same Voice XML browser used in Dialog Designer, software that developers use to create call-flow applications and test them on a PC to make sure they work, Avaya says.

Call Portal, Dialog Designer and a current Avaya TDM voice-response platform, Interactive Response, share the same Voice XML browser, so call applications developed on Dialog Designer don't behave differently when they are implemented by Call Portal, says Avery Glasser, an analyst with Opus Research. "Little differences in browsers can change how an application behaves," he says.

Call Portal includes Port Fail-over that allows standby servers to jump in if primary servers fail. Licenses for the primary server are automatically shifted to the standby server, making it unnecessary to pay for licenses that are mostly on standby, Glasser says.

Call Portal is based on IP and supports Session Initiation Protocol and H.323 VoIP equipment. This means that businesses could issue wireless phones rather than laptops to mobile employees and they still could access data they need from corporate servers, Herrell says. Call Portal also could save money by eliminating live call agents. "Anytime you're automating a service, it costs a lot less than having human assistance on the other end," she says.

Call Portal costs \$900 per port, and Dialog Designer comes with it for free. Customers of Avaya's Interactive Response software who have a maintenance contract can swap for Call Portal at no extra charge. ■

Conference

continued from page 14

commit fraud by wrongly tagging goods. Use of public-key encryption would likely be the best way to counter or identify these types of threats, but this is still rare in the RFID world.

Experts on the panel suggested that although the threat appears minor at this point, it is a cause for concern.

Paul Simmonds, chief information security officer at chemical and paints manufacturer ICI in the U.K., said corporations in retailing and the grocery industry use RFID tags to speed delivery of goods so they don't have to unpack them to identify them.

But as a maker of a premium line of house paints, ICI would be concerned if its goods were fraudulently marked down in a two-for-one sale through some form of RFID spoofing. "People can get away with theft with this," Simmonds said.

As the session turned to the subject of government use of RFID tags in passports — which the U.S. has said it intends to implement — the panelists expressed reservations that sufficient security controls might not be in place to prevent identity theft.

"Do I want to walk around Baghdad and be identified as a Brit or American?" Simmonds said. "Someone could embed it in an interesting technology, like a land mine."

Simmonds, a Jericho Forum member, also spoke at Black Hat on the idea of "de-perimeterization." This alludes to a process of gradually moving away from the use of perimeter defenses — mainly firewalls — for use of security controls such as authentication and VPN, to methods that bring controls closer to actual data sources and make it easier to offer access to e-commerce partners and restrict data access.

The Jericho Forum a few months ago announced it would hold a contest inviting participants to submit papers identifying methods, technologies or concepts that satisfy the frameworks the forum laid out in its own white paper.

The Jericho Forum's judges selected three finalists (see graphic). The top winner was AppGate, with a paper that defines how companies that want to move to a de-perimeterized world could focus on controlled access to systems. Security vendor nCipher came in second with its own reference architecture. And a Jericho Forum mem-

De-perimeterization contest winners

Jericho Forum sought entries that best reflected the vision of moving security controls away from the network perimeter and more deeply into the intranet.

First place: AppGate, paper describing internal points of authentication and control.

Second place: nCipher, academic analysis called "Safety in a de-perimeterized world."

Third place: German investment bank DKW for theoretical paper "Blind Public Key," a concept for certificate-based credentials undergoing internal testing.

ber, German firm Dresdner Kleinwort Wasserstein, placed third with a discussion of innovations associated with public-key credentials that it is testing.

The papers can be read at www.jerichoforum.org.

Beyond PGP

Among other notable visions of the future heard at Black Hat was one by Zimmerman, who invented PGP encryption for commercial use while sparring with the U.S. government in the 1990s for the right of the citizenry to use strong encryption. Before a packed audience, Zimmerman, now a consultant, announced how his next big project would be applying encryption for practical use in what would be primarily computer-based VoIP phones.

"Every day I can see on my

console these break-in attempts, hopefully being repelled," Zimmerman said. VoIP phones are going to be a target, he said. "I saw e-mail needed to be protected years ago and that's where PGP came from."

He demonstrated an encryption-based VoIP implementation for Macintosh based on using VoIP freeware that allowed users to easily set up an encrypted call but emitted stinging static to eavesdroppers.

Zimmerman's technology — which he says he soon wants to submit as an open standard and possibly commercialize by offering software for Macintosh and Windows — appears simple for practical use.

It relies on encryption hash technology to provide a unique three-digit identifier that each caller will receive when initiating a VoIP call. The callers simply start their conversation by sharing these identifiers with each other, which prove there's no man-in-the-middle attack, and the rest of the conversation is encrypted.

Zimmerman also spoke about the evolution of the encryption security debate that raged back in the '90s as the U.S. government sought extensive control over commercial cryptography. That war has largely been fought and won, he noted. "I didn't see a clampdown on crypto after 9/11," he said.

Ultimately, Attorney General John Ashcroft came down on the side of free use of cryptography. This led to greater liberalization in the U.S., while other countries, including France and Britain, also lessened cryptography controls. ■

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► For more speech technology news, see our story on Aspect's latest self-service software. Page 27.

Time change poses no Y2K replay

BY STACY COWLEY, IDG NEWS SERVICE

A bill expected to gain approval from Congress soon means some programmers would again need to check their code for potential problems handling a calendar adjustment. Congress is proposing a four-week extension of daylight-saving time (DST), a move that could trip up applications and gadgets programmed to adjust their internal clocks according to the summer time schedule that the U.S. has kept for nearly two decades.

The IT industry will have plenty of time to prepare for the change: The extension would take effect one year after enactment of the Energy Policy Act of 2005, which likely means a 2007 start date for the new DST schedule. The energy bill won approval last week in a joint Senate/House conference committee.

The change would shift DST's start from April to March and move its end from October to November. Those extra few weeks of DST will save 100,000 barrels of oil a day, according to legislators backing the change.

It will also confuse programs set to automatically handle DST

'Spring ahead' earlier, 'fall back' later

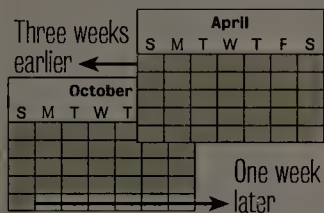
Extended daylight-saving time would start three weeks earlier, end a week later and perhaps cause problems with computer systems.

Current DST:

- Begins first Sunday of April.
- Ends last Sunday of October.

Proposed new DST:

- Begins second Sunday in March.
- Ends first Sunday in November.



hours. Springtime changes, observed in patchwork fashion around the world, have always been an annoyance for programmers and systems administrators: Online support groups are full of workarounds and suggestions for

an assortment of DST-related glitches. For example, Cisco's technical support has pages of detailed technical information about solving DST problems afflicting its servers and routers, while Oracle's online discussion forum is filled with posts from developers seeking help handling esoteric DST challenges.

Many applications rely on the operating system to maintain an accurate clock, meaning Microsoft will play a critical role in keeping the world's computers running on time if DST hours change. The company says it's not worried. "We're aware of the upcoming change and will make sure that Windows handles the transition smoothly," says Peter Houston, Microsoft's senior director of servicing strategy.

"Smoothly" doesn't necessarily translate to "flawlessly." Microsoft's support Web site contains dozens of articles related to DST hiccups, varying from broad problems — some multiprocessor computers running Windows NT 4.0 Service Pack 4 or 5 have trouble adjusting to DST — to minor oddities. In Windows Millennium Edition, the operating systems' DST adjustment accidentally reset HTML wallpaper back-

ground images to a bitmap file.

Still, no one in the industry is expecting Y2K-bug-like chaos and expense. Representatives from research firms Gartner and Forrester Research said none of their analysts are studying the impact of a DST schedule change, while several major vendors says the effects would be slight. "We view the proposed change in DST as minor," says Computer Associates spokesman Bob Gordon. "Most of our products rely on the operating system DST determination. When the operating systems are updated to recognize the new dates, most of our products would automatically use the updated information."

For savvy developers, the looming DST change could even present a business opportunity. A discussion on technology news site Slashdot about DST effects drew hundreds of comments, including one from a consultant who, having missed the Y2K gravy boat, was determined to snag a piece of the DST market. "You might say there is nothing to really worry about here, but all the more reason to sell yourself to clients," the poster wrote. "If there is no real threat, there is no danger you will fail." ■

Windows x64 calls for 32-bit rewrites

BY ROBERT MCMILLAN, IDG NEWS SERVICE

Companies looking to become early adopters of Microsoft's Windows x64 Edition operating systems might find that their favorite anti-virus software no longer works on their new desktops.

Though Microsoft maintains that most software written for older, 32-bit versions of Windows are compatible with the 64-bit version, released in April, changes to the kernel of Windows means that certain types of software need to be rewritten for the 64-bit versions.

"Every time that we do a major shift in the kernel ... any software that runs in kernel mode needs to be rewritten," says Brian Marr, senior product manager in Microsoft's Windows Client group.

With the x64 versions of Windows, device drivers and anti-virus software, in particular, will need to be rewritten. "Beyond that, there aren't too many types of applications that hook into the Windows kernel that deeply," Marr says.

So companies that use products such as

McAfee's Internet Security Suite or Trend Micro's PC-cillin Internet Security will have to wait until 2006, when the first x64 Edition products from these companies are expected to ship. Enterprise customers can purchase Symantec's AntiVirus Corporate Edition 10, which supports x64 Windows. Symantec representatives were not able to say whether Symantec planned to create a 64-bit version of its anti-virus software for small business or home users.

Hoping to capitalize on the gap in anti-virus products, Eset last week released a version of its NOD32 software for 64-bit systems. Eset's software is able to determine whether it's being used in 32- or 64-bit mode, and both types of systems can be managed by a single piece of management software, called the NOD32 Remote Administrator. "The 64-bit support that we provide is pretty much seamless to the user," says Andi Lee, Eset's CTO.

Lee acknowledges that, to date, there have been few vulnerabilities found for 64-bit versions of Windows and that the platform might

be less appealing to attackers because it has so few users. But he believes that early adopters are going to want anti-virus software, and that the lack of options is going to surprise some users. "One of the biggest pains is going to be the fact that a lot of the big players don't have an [anti-virus] solution," he says.

Still, that pain will be limited to a fairly small group of desktop users, Microsoft's Marr says. Microsoft expects that until the release of Windows Vista, which is expected in late 2006, 64-bit computing on Windows computing will be confined to the "ultra high-end user in the business space," he says.

"We do expect 64-bit computing to become more mainstream," he says. "I think that time is probably more in the [Windows Vista] timeframe," he says.

And while there might be problems for users in the interim, once 64-bit anti-virus products hit the mainstream, Microsoft expects users will see some security-related performance improvements. Encryption, for example, should be noticeably faster, Marr says. ■

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NET INFRASTRUCTURE

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Apps acceleration market in flux

BY PHIL HOCHMUTH

A run on acquisitions of WAN/LAN acceleration vendors is causing confusion for those exploring the technology, which promises to speed key corporate applications, experts say.

But those with such gear already up and running have few complaints.

Just as this market's picture was becoming clearer, Juniper, Cisco and Citrix shook the Etch-A-Sketch. Juniper bought emerging application acceleration vendors RedLine and Peribit in April for a combined \$469 million, while Cisco bought WAN traffic accelerator FineGround for \$70 million. And in a move counter to the norm in the networking market, software vendor Citrix, which sells terminal server/thin-client hosting software, bought out NetScaler, a high-end Layer 4-7/application acceleration box maker, for \$300 million.

When tallied up, the buyouts equal 86% of the 2004 application acceleration market.

Ties between hardware and software vendors also tightened more recently, as F5 last week announced a deal where Oracle will provide full support for customers accelerating Oracle databases on F5 gear. Additionally, Cisco launched an entirely new business unit around speeding up cor-

porate apps through hardware — Application Oriented Networking — and partnered with IBM, SAP, Tibco and other software vendors in the effort.

One of the challenges of the application acceleration vendors has been defining exactly what their products plug into and what they do. Some, such as NetScaler and RedLine, offer devices that sit in front of banks of servers and provide multiple services, such as Layer 4-7 switching and load balancing, HTTP and non-Web-based traffic compression, as well as SSL VPN services and TCP/IP connection termination. Other gear, such as Peribit and FineGround devices, sit on both ends of a WAN link and optimize traffic for remote sites connected to a corporate data center — providing compression and security features.

According to Gartner, the market for these products came into its own last year when it reached \$967 million worldwide. Acceleration gear, which sits only in a data center, accounted for more than half that amount, while WAN optimization products, which are deployed in both the data center and remote locations, made up the balance.

As customers install more of these products, and large networking vendors inte-

Buyout acceleration

A series of acquisitions in the application acceleration market, which grew past \$1 billion last year according to Gartner, has changed the market's landscape.

Company	Technology	Bought by	Amount
Peribit	WAN traffic acceleration	Juniper (April)	\$337 million
Redline	WAN acceleration, load balancing	Juniper (April)	\$132 million
FineGround	WAN acceleration	Cisco (May)	\$70 million
NetScaler	LAN/WAN acceleration, load balancing	Citrix (June)	\$300 million

Who's left

Crescendo	Load balancing, server processing offload
F5	Load balancing, compression, traffic acceleration
Packeteer	WAN traffic optimization
Radware	Traffic acceleration, load balancing

grate the services into current gear, the various functions these devices provide — TCP/IP connection management, SSL offload, caching and compression — will be consolidated, experts say.

"Over time [these] functions will converge onto a single platform," says Joe Skorupa, principal analyst at Gartner. "The trend toward platforms that deliver four or more functions will accelerate as customers strive to simplify their infrastructure."

In the meantime, the spate of acquisitions in the market is causing confusion among potential buyers of application acceleration technology, some say. This could make it hard for vendors, especially some of the more established independent vendors still remaining, such as F5, Radware and Packeteer, to sell this technology.

"We have seen a lot of confusion with our customers, resellers and value-added dis-

See Acceleration, page 20

Short Takes

■ **Arbor Networks** next month plans to unveil PeakflowX User Tracking, a capability in the PeakflowX intrusion-prevention appliance that will track insider misuse of the intranet. The User Tracking feature will measure individual network usage and identify illegal access to data resources. PeakflowX IPS costs \$60,000.

■ **ForeScout Technologies** last week announced CounterACT 5.0, its network-based security appliance deployed at the access switch that provides access control. CounterACT 5.0, which costs \$12,000, adds active-response modules that scan the network for vulnerabilities and ensure anti-virus and software patches are up to date on host computers.

Expand Networks adds WAFS support

New gear caches files locally, syncs with central servers.

BY TIM GREENE

Expand Networks this week is expected to announce support for wide-area file services that can help businesses save money by consolidating servers into data centers rather than maintaining servers at branch offices.

To accomplish this, Expand is introducing three Expand Accelerator hardware appliances, as well as software designed to boost the speed of Microsoft-based file transfers. The hardware includes hard drives for caching frequently and recently used files locally so they don't have to cross the WAN each time they are accessed.

The software synchronizes changes made in branches with the master files stored on central servers so the next person to access the file gets the current version. To sync files, the devices send only the data that changed, not the entire file, minimizing how much data crosses the wide-area connection.

The software accelerates Microsoft's Common Internet File System (CIFS) protocol that is used for transferring files. CIFS is designed for use on LANs, and its chatty nature tends to slow traffic on WANs because each back-and-forth exchange has to cross constricted links that are subject to congestion and network delay.

Other vendors such as Riverbed Networks and Swan Labs are adding WAFS capabilities to their products, which were originally designed to make more efficient use of WAN links for general traffic, says

Joe Skorupa, an analyst with Gartner. WAFS is geared for optimizing file transfers across the WAN, and Tacit Networks is specializing in it, he says. Cisco, Juniper and HP are adding WAFS technology to their lineups, Skorupa says, and might wind up supporting WAFS with blades in routers.

One Expand customer that already used its WAN acceleration appliances to speed links between its data center in Missouri and call centers in Jamaica and Panama is considering the new Expand devices for their WAFS capabilities that would let the company consolidate its servers.

The devices would allow the company to pull servers out of the call centers where supervisors write and store reports and instead centralize them at the data center, says Andy Ellsworth, network engineer for National Asset Recovery Services

See Expand, page 20



TOLLY ON TECHNOLOGY
Kevin Tolly

Confusion is essence of Cisco's AON

information.

In fact, one of the few concrete elements I could find in my search for the essence of AON was the phrase "Intelligent Message Routing." This, we are told, is the "breakthrough technology" that delivers more than the type of application awareness found with devices such as load balancers.

Where a load balancer, for example, would simply inspect a packet and make a decision (such as sending the stream to the least busy server), an AON-class device would work at the "message" level.

That is, the AON module would terminate the connection, gather up the packets and reassemble them into a complete message. The AON device might then reformat a message (by remapping,

adding or deleting fields) so that an application incompatible with the original sender could now read it. AON would then, it seems, initiate communications with the destination application.

Cisco might call this "application oriented," but I think most of us would call it an application. To be implemented properly, this application would need queuing mechanisms, disk-based input/output for intermediate storage, transaction rollback and recovery, and so forth. In short, you'd need the same sophisticated functions that application programmers count on the OS and middleware vendors to provide.

Think for a moment how many aggregate development dollars have gone into the hardware and software for even the most mod-

est Dell servers that one could buy to run a "transform" application. I wouldn't hazard an exact guess but it has to be north of \$1 billion.

Given that all communications "up and down" the stack will use standard Ethernet connectivity and IP — and station-to-station latency across Gigabit Ethernet is miniscule — there is no likely performance benefit to be had from the tightly coupled AON system. On the contrary, if Cisco puts too many AON hooks into its core switches and routers, it could slow all traffic.

Ask yourself: Does it make more sense to put a switch in your server or a server in your switch? Common sense would support the former; Cisco proposes the latter.

With this in mind, the press release quotes are more telling.

An IBM quote addressed the question by avoiding it and saying nothing — "IBM's collaborative efforts with Cisco in support of AON will allow WebSphere and Cisco customers to capitalize on this emerging architecture to reduce complexity, consolidate IT, and improve performance."

One of the few quotes with any specifics, from BT Radianz, noted that they would use AON to "monitor and report" (not transform) Financial Information Exchange records. Not too compelling, either.

With endorsements like these, who needs critics?

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Boca Raton, Fla. He can be reached at ktolly@tolly.com.

In these first few weeks of Cisco's Application-Oriented Network era, one of the biggest challenges has been to understand what AON really is. While the name strongly suggests an "awareness" of applications, the reality is that AON is an application, which is another matter indeed.

The general consensus, I found, from a number of veteran Cisco watchers and competitors was "confusion" after absorbing the initial marketing blizzard from Cisco. So many words, so little

Expand

continued from page 19

in Chesterfield, Mo. "It would be nice to have the data secured in the [U.S.] and cached on the Expand boxes as a way to give supervisors access remotely," he says.

The new Expand gear might help further reduce National Asset Recovery's cost of remote equipment maintenance by replacing DNS, DHCP and print servers, all of which are integrated in the new Expand devices, Ellsworth says.

The Expand boxes also optimize traffic between Citrix client machines and servers, boosting performance across WANs. For businesses that use Citrix to reduce the number of servers in their networks, as well as the number of full application clients on PCs, this can boost performance. Ellsworth says he runs Citrix traffic over Expand Accelerators and they cut WAN traffic by a third. He says he expects further but less dramatic reductions with the Citrix software.



Expand Networks' Accelerator 4920, 6910 and 6940 are tuned for wide-area file services.

Expand's gear can be deployed to support both WAN optimization and WAFS, or just one of them. The new Accelerator hardware supports both, and the old Accelerator supports just WAN optimization, the company says. It will continue to sell both.

Businesses sometimes want these functions separated because the

WAN optimization is handled by network groups and WAFS is handled by storage groups. Keeping the devices separate prevents the two groups from conflicting, Gartner's Scorupa says.

The three new Expand appliances, Accelerator 4920, 6910 and 6940, are in beta testing. The 4920 supports up to 2M bit/sec links, 10 remote sites and has a 160G byte hard drive. Pricing starts at \$4,500. The 6910 supports up to 10M bit/sec links, 50 remote sites and has a 400G byte hard drive. Pricing starts at \$12,000. The 6940 supports links up to 20M bit/sec, 200 remote sites and has a 400G byte hard drive. Pricing starts at \$20,000. ■

Acceleration

continued from page 19

tributors, as they sought to get a better understanding of the recent changes in the market," says Radware President and CEO Roy Zisapel. Earlier this month, the company warned it would miss Wall Street earnings expectations, attributing the rough times "primarily to the recent acquisition activity in the overall application-networking space."

Other recent reports by market analysts say there is huge potential in the market, but more intense competition since Juniper and Cisco entered the game. A recent report by investment research firm Piper Jaffry calls the acceleration market "one of the best-performing sectors within the networking universe" but also said it would be rough going for vendors such as F5 until the dust settles.

Standard and Poor's Equity Research concurs, adding in a report that the Cisco, Juniper and Citrix deals "have disrupted the competitive environment through delaying customer buying decisions."

"We haven't heard of any confusion with our customers or potential customers," says Jason Needham, director of product management for F5. "I think the acquisitions in the market have shown that this technology is of high value to customers. More people are seeing the value of planning their network architecture with applications in mind."

Customers running acceleration gear up say the payback on such equipment is immediate.

Serono, a Switzerland-based biotech firm, has 5,000 employees, with more than a quarter of them working remotely in 50 sites across 40 countries. The firm last year installed devices from RedLine networks to front its key application servers, which deliver e-mail, Siebel CRM applications and other software via Web-based interfaces and portals.

The traffic compression the RedLine device provides has boosted response time of the company's Web-based applications while freeing up bandwidth

over its WAN pipes, according to Rael Paster, head of collaboration services at Serono.

"We saw a 93% performance gain over our WAN links" after turning on traffic compression, Paster says.

Companies that have installed acceleration gear also praise the technology for its load-balancing and advanced features for handling IP addresses.

Devices from NetScaler were recently installed at ProHealthcare, a healthcare management company in Waukesha, Wis., with more than 5,000 employees. Instead of pushing applications out to remote users over the Web, ProHealthcare was moving its LAN and campuses-based patient management system, supplied by IDX, from green-screen terminal emulation to a browser-based interface.

The trick, says Cynthia Overby, manager of network services, was making the organization's high-end HP Himalaya mainframe act more like a Web server. When the application was switched from green-screen window on PCs to browsers, the Himalaya still handled the clients like terminal-emulated clients; the mainframe required a fixed IP address linking the PC and the server.

"This slowed down performance by about 30%" vs. the old green-screen application, Overby says. It also limited the number of connections to 2,456, which was the limit of IP-based clients the mainframe could handle. Putting a NetScaler box in front of the Himalaya allowed IP addresses to be dynamically distributed and eliminated cap on the number of client connections. The device also balanced the traffic load of IDX packets among the seven IDX server instances running on the mainframe, Overby says. Compression helps, too, shrinking the browser-based traffic, which has freed up LAN bandwidth by 25%. The NetScaler device also provides SSL traffic encryption, required by federal law for patient records. This has freed up CPU cycles on the Himalaya to process more IDX application bits. "All of this greatly improved the overall performance of the system," Overby says. ■

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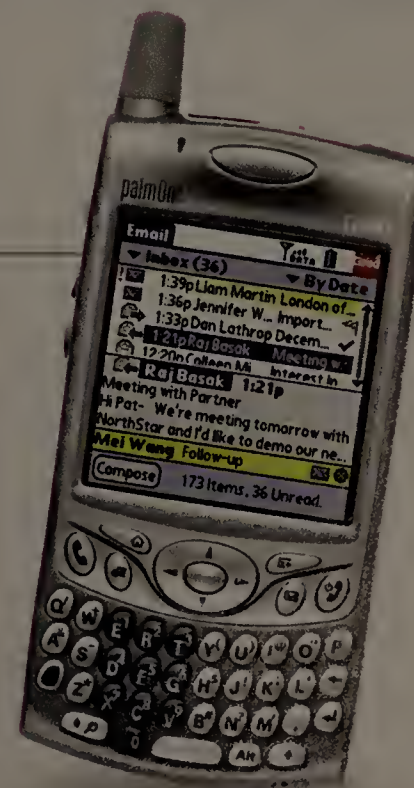


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CLEAR CHOICE TEST

IBM x336 packs power in a slim server framework

BY JOHN BASS, NETWORK WORLD LAB ALLIANCE

If you are looking for lots of server power packed into a small space, look no further than the IBM xServer 336 series. In our tests, we were impressed with its solid performance, a great physical design and management features.

The server's single-rack space form will be attractive for enterprise applications where two-processor servers are needed yet space is a premium. For example, businesses with many CPU-intensive Web and database applications that require dedicated servers would benefit from the x336.

The server packs two 3.6-GHz processors, two PCI-X slots (we had one 64-bit 133-MHz slot and one 64-bit 100-MHz slot), two Gigabit ports and two 3.5-inch drive slots in one 1.75-inch vertical rack space. The server we tested also included 4G bytes of 400-MHz DDR2 synchronous dynamic DRAM.

In the test, we could saturate the dual Gigabit Ethernet interfaces with 1.96G bit/sec of traffic. The server performed well, supporting nearly 760 SSL transactions per second. In our I/O subsystem test, the x336 could support 102 transac-

tions per second, with an average disk queue length greater than five. Comparing this with other servers, our 1-year-old server could sustain only 45 transactions per second. (Note: Results are for relative performance only, not to determine absolute server load capacity. Our results can show whether one server is more powerful than another. They can't show how many users can be serviced, since the test methodology may not simulate the application used.)

Finding errors quickly

We were impressed with the system's "light path diagnostic" troubleshooting aid, which made fixing failed components fast and easy. When the retractable operator information panel extends from the chassis, LEDs become visible, indicating whether the server subsystem is the source of a system error. A "remind" button lets the user acknowledge the system error, which clears the error LEDs and causes the system-error LED on the front panel to blink every two seconds until the error is cleared.

If a new error occurs, the front system-error LED panel lights up. The error LEDs indicate individual components in an error state. For example, if a RAM module fails, the system-error LED lights. After you extend the information panel, the MEM error LED light is visible. After opening the chassis, a lit LED beside the failed RAM module indicates the problem.

Under the hood

After opening the large removable cover (the cover is easy to remove, but it takes some effort to close, as it tends to get hung up in the fan access doors), the system's processors, RAM, PCI-X slots and component error LEDs are revealed. The components were neatly laid out, with no cables to route or get bound in the chassis cover. Two hinged doors on the top of the server provide access to redundant fans, which can be hot swapped in case of failure. Early dual-processor single-rack space servers (regardless of vendor) had a cooling problem, and it appears that IBM has done a good job in addressing this issue.

ENTERPRISE SERVER

IBM xServer 336

IBM www.ibm.com

NetResults 4.2

Price: \$8,922 as tested

Pros: Excellent physical layout, great performance

Cons: Top cover difficult to replace; no small deployment management application

The Breakdown

Performance 40%	4.5	Scoring Key: 5: Exceptional 4: Very good 3: Average 2: Below average 1: Consistently subpar
Serviceability 30%	4	
Management 20%	4	
Documentation 10%	4	
Total score	4.2	

How we did it

Tests were executed with Spirent's Avalanche 2500 (operating system Version 62112, product Version 6.51, two CPUs) and Avalanche Commander v6.51 Build 34500.

The server under test included Internet Information Server (IIS) on Windows Server 2003. All IIS logging was disabled to increase Web performance.

We ran three tests to focus on the three main subsystems of the server: CPU performance, network adapter and disk I/O. The CPU test consists of SSL transactions triggered by HTTPS requests for small files, about 1K byte in size. The goal was to load down the CPU down with SSL encryption key calculations. The small file request reduced the load on the disk I/O and network subsystems.

The disk I/O subsystem test submitted random HTTP requests of small files in a large file space. The file space (dataset) size was ideally more than four times the amount of physical memory to minimize the effects of caching. The small file requests minimized the workload on the network subsystem. The HTTP requests minimized the load on the CPU subsystem.

The network subsystem test executed HTTP requests of 35M-byte files. The goal of this test is to fully utilize the available bandwidth of the server.



The xServer 336 includes two processors in a single rack.

The back of the chassis houses two hot-swappable, load-balancing power supplies, a serial port, VGA port, two USB 2.0 ports, mouse and keyboard port, the two Gigabit Ethernet ports, a 10/100 management Ethernet port and card edges for the two PCI-X slots. The power supplies were easy to remove and replace. If using two power supplies, the two share the load, and if one fails, the server can continue to run off the lone supply.

Managing the server

IBM's Director Version 4.21 is used to manage its server line. The server and console portion is installed on the server used to manage the other servers, and the agent portion gets installed on the server being managed. Linux and Windows versions of the IBM Director components are available.

The management server is very powerful, but this comes with a cost. The server and console components are rather large and take some time to install. If you have only one or two IBM servers to manage, this might seem like too much overhead. Unfortunately, there doesn't seem to be a solution (such as an IBM Director Lite). Other than that, the Director application gave us what we'd expect from a single-vendor, enterprise-class server management platform. It let us configure, monitor, deploy and troubleshoot the x336.

The x336 system documentation was clear and easy to read. It was refreshing to quickly search a document for the necessary information and not end up following a circle of meaningless information or references to multiple sources.

The x336 is a solid-performing server, with great physical design and management features. Its single-rack space design will attract companies looking to host applications that need dual processors, but in a small space.

Bass is a senior technical staff member at North Carolina State University's Centennial Networking Labs. CNL tests networking equipment and network-attached devices for interoperability and performance. He can be reached at john_bass@ncsu.edu. Chintan Desai and Nader Shinouda of CNL assisted with the testing.

NetworkWorld

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State IT execs betting on VoIP

[illegible]

Is security ripe for outsourcing?

Q BY JEFFREY GORDON

America's dominant role in the Middle East has been a source of controversy since World War II. In recent years, however, it has become even more so. The U.S. has been accused of supporting Israel at the expense of the Palestinians, and of being involved in a war of aggression against Iraq. What are your thoughts on the U.S. role in the Middle East?

Alexander: We're finding that there aren't many people who think we have a right to intervene in the Middle East. I don't know if you've seen the book "The Arab Spring" by Robert F. Kennedy Jr., but it's a good example of what's going on. It's a very good book, and it's a very good example of what's going on.

Colleges cram for test of new security plans

[illegible]

Keeping track of NASCAR

[illegible]

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ENTERPRISE COMPUTING

■ WINDOWS ■ LINUX ■ UNIX ■ SERVERS ■ STORAGE ■ GRID/UTILITY ■ MOBILE COMPUTING

Short Takes

■ **Microsoft** has announced that the official name for its operating system, previously known as Longhorn, will be Windows Vista. The software is due out in 2006, though Microsoft said that a first beta is expected to be available to developers and IT professionals Aug. 3. The first beta will include only some of Vista's promised functionality, such as virtual folders and a new desktop search engine, but will not include many of the GUI enhancements of the finished product.

■ **HP and Altiris** have strengthened their long-standing partnership with the release of two co-developed client-management software bundles. The HP Client Foundation Suite includes five main software pieces: HP Client Manager 6.1, HP Systems Insight Manager Connector, Altiris Inventory Solution, Altiris Deployment Solution and Altiris Local Recovery Pro. The second bundle, the HP Client Premium Suite, contains those products plus seven more: HP OpenView Connector, Altiris Software Delivery Solution, Altiris Patch Management Solution, Altiris Application Metering Solution, Altiris Connector Solution, Altiris Carbon Copy Solution and Altiris Application Management Solution. The HP Client Foundation Suite costs \$63; the HP Client Premium Suite is \$92. HP says each saves more than 62% than if customers were to buy the suite's software elements separately.

■ Industry watcher **In-Stat** says the market for tablet PCs has had mixed results since starting up three years ago, but significant growth is on the way. The researcher projects the market for these devices, which run Microsoft's Windows XP Tablet PC Edition operating system, will more than quadruple, from \$1.2 billion last year to \$5.4 billion in 2009. Vertical markets such as healthcare, real estate and insurance have driven shipments.

InSite: Lessons From Leading Users

PC blades get clean bill of health

Healthcare group finds them more secure, less costly.

BY DENI CONNOR

Northwestern Memorial Physicians Group has decided that patients and traditional PCs just don't mix in the exam rooms at its clinics.

On one hand, medical workers for the Chicago-area healthcare collective need fast access to patient data in exam rooms. On the other, the organization fears that outfitting the rooms with full-fledged PCs could result in data or computer theft, create awkward PC support situations and even result in contaminants dispersed by a PC's fan in the presence of a sick patient.

Those are among the issues behind NMPG's decision to yank noisy PCs out of exam rooms and replace them with devices called PC blades, which fit into a central rack, such as server and other blades. The healthcare outfit installed 149 PC blades and plans to get 30 more up and running this month.

The twist is that these systems, from ClearCube, are divvied up so that the monitor, keyboard and mouse are in the exam rooms (they're linked via a small box called a port, which connects to the LAN), but the CPU, memory and disk drives are in telecom closets or medical supply rooms.

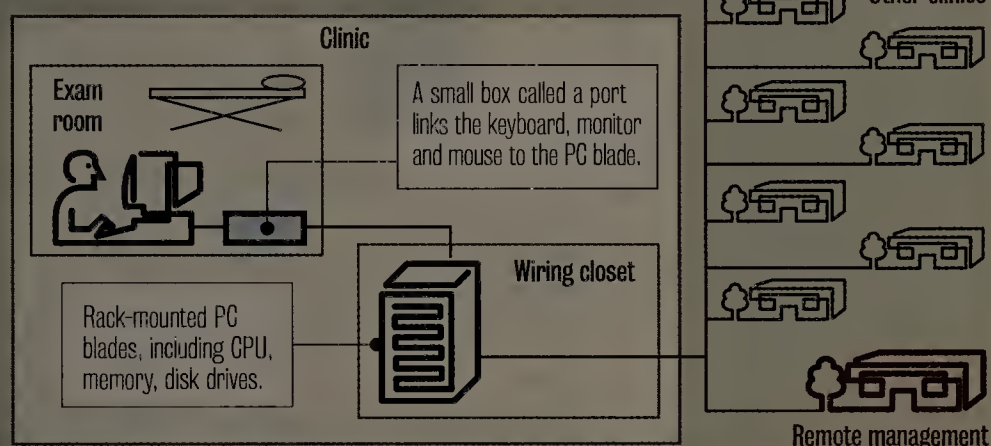
"One of the reasons we didn't want to put traditional PCs in the exam rooms was security," says Guy Fuller, manager of IT. "We didn't want the physicians walking out of the room and having a patient take a PC with them when they left. Conversely, we didn't want to lock down the PC, because it would affect the physician/patient experience."

Making the switch also involved an economic decision.

"I didn't want to send a technician into a room to replace a PC while a doctor was

The PC blade is in

Northwestern Memorial Physicians Group replaced traditional PCs in the exam rooms at its clinics with PC blades. The new setup helps to protect patient data, gives medical personnel reliable data access and eases desktop management, according to the IT team.



"One of the reasons we didn't want to put traditional PCs in the exam rooms was security."

Guy Fuller, manager of IT, Northwestern Memorial Physicians Group

performing a procedure on a patient. We see patients at 15-minute intervals, and we can't afford any downtime," Fuller says.

He estimates that over a four-year period the company will save as much as \$300,000 for every 100 ClearCube-bladed PCs. For

every 15 minutes a computer is down in an exam room and a physician can't provide care, NMPG would lose \$150 in revenue, Fuller says.

Fuller and his associates are responsible for maintaining, configuring and

installing servers and workstations at NMPG's nine satellite medical clinics. They use the ClearCube Management Suite.

"We don't want to visit a clinic if we can help it," he says. "At a later date, we'll schedule a visit to the clinic to add a new, spare blade."

NMPG has measured some solid benefits from making its PC swap. The organization reduced the number of hours spent upgrading and patching PCs by 57% — from 200 hours to 86 hours — since the PCs can be administered, managed and failed over

remotely. The outfit slashed the number of hours spent supporting PCs by 75%, and user downtime fell from 280 to 87 hours.

Installing bladed PCs at NMPG had its challenges. Fuller and his staff had to retrofit rooms, which also held medical supplies, bandages and patient charts, to deal with such issues as the heat generated by the back end of the ClearCube systems.

"The building management won't allow me to exhaust through the plenum," Fuller says, referring to the space above the ceiling. "To put extra cooling on the roof would cost hundreds of thousands dollars, so that isn't realistic." He has installed portable cooling in some rooms or vented the heat into other places.

Until last year, ClearCube was the only vendor to offer bladed PCs. HP also offers them now. IBM and Dell rely on traditional PCs or thin-client implementations. ■

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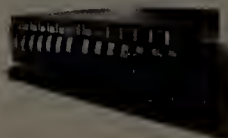
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Sun eyes throughput-computing push

BY JENNIFER MEARS

Sun is set to begin a major push to improve computing throughput with the release of systems based on its eight-core Niagara processor in the first quarter of next year. Analysts say the systems, which are designed for multi-threaded, Web-facing workloads, such as security processing, could give Sun the edge it's looking for to reinvigorate its Sparc-based line of servers.

Sparc lifted Sun's fortunes during the dot-com boom, but since then, the company has had to shift gears as enterprise customers moved away from buying big pricey boxes in favor of smaller, less expensive standards-based systems. In the past year or so, Sun has focused on the low end, announcing a close partnership with AMD.

Sun is preparing to roll out its Opteron-based Galaxy line of servers in coming months. At the same time, the company continues to improve its high-end systems and is preparing for several new Sparc product launches, including systems based

Looking for a Sparc

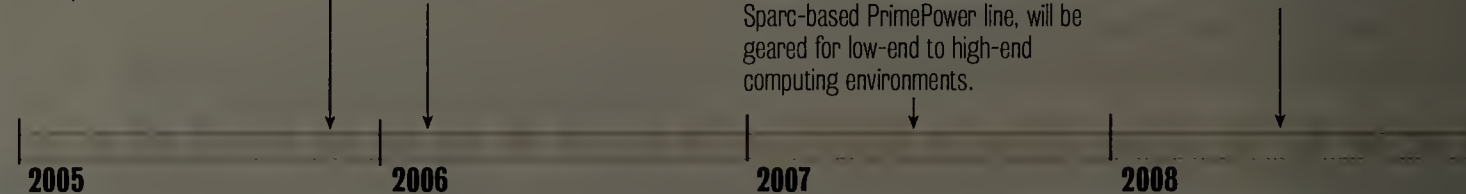
Sun is preparing to roll out chips it says are designed to handle heavier workloads and better meet customer needs.

Sun says it will begin shipping systems in the fourth quarter based on UltraSparc IV+, which will have a higher clock speed, and more enhanced memory and I/O features than UltraSparc IV.

Sun to begin in the first quarter its throughput-computing push with systems based on an eight-core Niagara chip. Each core in the processor will handle four simultaneous threads, enabling it to support 32 threads at a time.

The Sun-Fujitsu partnership announced in 2004 is expected to yield results, with servers in what Sun is calling its Advanced Product Line beginning to ship. The servers, a result of a merger of Sun's Sun Fire line and Fujitsu's Sparc-based PrimePower line, will be geared for low-end to high-end computing environments.

Systems based on Sun's high-end throughput-computing chip, Rock, to debut. Sun has released few details about the chip, except to say that it will be multi-core and geared for high-end database and ERP applications.



on an updated UltraSparc chip and Niagara.

The struggling server maker posted another quarter of revenue decline last week: Its fourth-quarter revenue was just less than \$3 billion, down 4.3% from the fourth quarter a

year ago. Sun says a more diversified server portfolio aimed to meet different business needs will help get its financials back on track.

Last year, Sun took its first step to improve computing throughput, in which single

chips handle multiple tasks simultaneously, by introducing systems based on UltraSparc IV, a dual-core, dual-threaded architecture. Niagara, which includes technology from Afara Websystems, acquired by Sun in 2002, takes the multi-tasking story further, with each of the eight cores able to handle four application threads.

In addition, with each core running at a lower frequency, Niagara can offer more processing power at a lower wattage, meaning less heat output and power demands than other servers, says Jeff O'Neal, director of engineering in Sun's scalable systems group.

"There is too much power being dissipated for the amount of performance you're getting out of today's data centers," O'Neal says. "What we're looking at is helping data center managers out of their jam by applying technology to the problem."

The key benefit of high-throughput computing is that it "hides memory latency," O'Neal says.

"In a typical architecture, when you have a cache miss or stall, the pipeline doesn't do anything. It waits. Whereas here, if the pipeline stalls, we just say, 'That's fine. We've got other threads lined up and shoot them through,'" he says.

Niagara has the potential to trigger growth of the Sparc Solaris line, says Nathan Brookwood, principal analyst at Insight64.

"IT managers more than ever are really feeling the pressure from the heat today's chips put out and the power they are consuming," he says. "If Niagara really can handle the workload of multiple Sun Opteron systems or Dell Xeon systems with less power consumed and less heat kicked out, I think that would attract new customers."

Sun also plans to begin shipping systems based on UltraSparc IV+ by yearend.

UltraSparc IV+ runs at 1.8 GHz, a boost over UltraSparc IV's 1.3-GHz chip. Perhaps more important, UltraSparc IV+ has a larger memory, including a 2M-byte L2 cache and a 32M-byte off-chip cache. ■

Forum seeks to keep grids safe

BY JAMES NICCOLAI, IDG NEWS SERVICE

The Enterprise Grid Alliance, which includes several top vendors trying to accelerate the use of grid computing by big businesses, has published its first paper on the unique security requirements of grids.

The 37-page paper aims to help users, vendors and standards groups identify the risks associated with enterprise grid computing. The group plans to discuss technologies and practices for mitigating the risks in a later paper, it says.

The alliance was formed in 2004 by Oracle, EMC, HP and several other vendors. Membership is open to all, though IBM and Microsoft have not joined.

Some of the security requirements described in the paper also apply to traditional systems and become more prominent in grid setups. For example, a storage system might contain sensitive information that should be accessible only from one application, even though several applications link to that storage resource. Grid computing, by its nature, tends to increase the occurrences in which multiple applications access a single resource, making security issues more prominent.

Other security requirements are unique to grids, and most of these have to do with what the paper calls the "grid management entity" or GME, responsible for the grid's operation. The GME provisions and configures grid components, such as servers and storage arrays, manages workloads and "decommissions" components when their

work is done.

"Grid resources [or simply pools of networked resources] alone are not unique to a grid environment. What is unique is the way in which they are aggregated and managed. By introducing the GME with the ability to provision, manage and decommission pools of grid resources, we get to the heart of the unique threats and security requirements in a grid environment," the paper says.

It goes on to describe various risks and how they can affect grid environments. They include access-control attacks, in which unauthorized users or components join a grid; denial-of-service attacks (against the grid management entity, for example); and object reuse, in which an unauthorized user accesses a grid component that has not been properly decommissioned or "sanitized."

The paper, coming from a group whose members sell products for building grids, strikes a mostly positive tone. It argues that grids can enhance security in some areas. It notes that grids still need security controls used in more traditional environments, in areas such as identification, authentication and confidentiality.

The alliance has limited its focus to enterprise applications within a single data center — far narrower than the definition used in academic and technical communities, which use grids to link computing centers that can be widely dispersed across organizations.

Grids that conform to that broader definition could pose considerable security challenges for a business. But a grid that operates within the boundaries of a single organization would not necessarily be difficult to secure, says Andy Kellett, a senior research analyst for security at Butler Group.

"If you've got a decent security system in place, and if the boundaries of your grid are the boundaries of your data center, then your existing authentication and access-control systems should take care of what's required," he says.

The paper is the second work published by the Enterprise Grid Alliance. In May, it published a "reference model" for grid computing, including a lexicon of terms, a model for classifying the management and life cycles of grid components, and a set of usage scenarios (see details at www.networkworld.com, DocFinder 8241).

The group has said it will build on top of current standards and research and not try to "reinvent the wheel." Other participants include Cisco, NEC, Novell and Sun. ■

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Summer reading

Check out the Enterprise Grid Alliance's white paper on grid security here: **DocFinder: 8227**

APPLICATION SERVICES

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Aspect reaches beyond the call center

BY JENNIFER MEARS

Aspect Communications, which specializes in call center workforce management applications, is updating its self-service software so customers can expand their use of speech-powered technology.

Customer Self Service (CSS) 7.1 includes a VoiceXML-based auto attendant product, the ScanSoft Open Speech Attendant, that can be deployed for broader corporate use. Aspect plans to announce the new version at the SpeechTek conference this week in New York. The basic platform starts

at \$20,000; the auto attendant add-on starts at \$25,000.

Open Speech Attendant provides speech-enabled dial-by-name capabilities, eliminating the need for a live operator to route calls within a business.

"What this means is you'll have a different buyer in the enterprise. The call center manager doesn't have to buy it. The IT manager can buy it. The telecom manager can buy it. It extends [Aspect's products] deeper into the enterprise," says Sheila McGee-Smith, president and principal analyst at McGee-Smith Analytics.

Corporations in growing numbers are turning to speech-enabled applications, such as Aspect's CSS, that let customers conduct transactions automatically via the phone, rather than having live agents handle every call. The idea is to reduce labor costs and improve efficiency.

Call center costs and ROI typically are very clear and by applying speech technology more broadly, customers will see greater return from their call center invest-

ments, McGee-Smith says.

"That's what Aspect is saying here, 'You bought it for your call center. Let me help you leverage it against the rest of your business,'" she says.

VoiceXML is one standard driving the trend toward broader use of speech-enabled applications. Aspect and its competitors, such as Avaya, Genesys Telecommunications Laboratories and Nortel, increasingly are using VoiceXML-based applications to make it easier for customers to expand speech-powered applications and extend them into other areas of their businesses. In the past, customers had to use custom-built applications.

"The Open Speech Attendant application is plug and play," McGee-Smith says. "It's a great proof point that their VoiceXML engine really works and that it doesn't have a lot of proprietary hooks in it that would make it difficult for an off-the-shelf, pre-packaged product to work."

Other updates in CSS 7.1 include support for more languages, better voice quality

and better recognition. In addition, CSS 7.1 integrates speech recognition and speaker verification technology from ScanSoft and Nuance. An updated open database connectivity driver, which enables the system to access databases from different vendors, provides faster data access for the self-service application.

Aspect's Customer Self Service product is available as a hardware/software package on Dell servers and as software-only. ■

Short Takes

■ GroundWork Open Source

Solutions, a maker of open source-based IT management software, has named Ranga Rangachari as president and CEO. He brings more than 20 years of sales and management experience from software companies such as Invio Software and Legato Systems. He replaces Robert Fanini, a company co-founder, who will continue with GroundWork to focus on market and business development activities.

■ **Netuitive** last week unveiled its Service Analyzer, software that is designed to automate the deployment of business service management tools and helps to manage IT service health. Among other things, the software correlates end-user experience with infrastructure performance data to assure end users get the IT service required. Service Analyzer starts at \$75,000 and is scheduled to be available on Sept. 1.

■ **Computer Associates** last week said it is buying e-mail security software vendor **Qurb** for an undisclosed amount. Qurb offers anti-spam, anti-phishing and anti-fraud tools, which CA says will complement its eTrust security management products. CA has licensed Qurb technology for its consumer product line since last year.

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A closer look at ITIL

The Information Technology Infrastructure Library is designed to help cut costs and streamline IT operations, and is finding converts seeking to maintain regulatory compliance as well. Initially popular overseas, ITIL is growing in use in the U.S., where four out of 10 organiza-

tions will adopt it by 2007, according to Meta Group (now part of Gartner). Former Meta analyst Michele Hudnall, now director of service management at software vendor Managed Objects, recently spoke with Network World Senior Editor Denise Dubie about the realities of ITIL and how corporate IT shops can make the most of their implementations.

What's behind ITIL's rise in popularity?

There has been a push on technology organizations to map technology to business for quite a while. Organizations struggled to do that, and they were looking to automate that.

Instead of starting with a blank sheet of paper and trying to define how to operate the technology organization, the ITIL processes give you a good starting point in defining what various operational processes might look like.

Where are we at in terms of ITIL adoption in the U.S.?

We are peaking. About four years ago, the ITIL adoption curve was starting to ramp up, but I rarely talk to an organization today that is not looking at ITIL in some respect.

How can vendors help IT organizations adopt ITIL?

Technology cannot be ITIL certified. It's only a consultant who helps an organization deliver the process that can be certified. And what is really being certified is their knowledge of the process and their ability to be able to put it in context of the organization. Look for good adoption of the ITIL terminology within the configuration of setting up and deploying the various technologies. Vendors can provide canned templates within the technology that leverage the high-level structure of ITIL so that IT staff isn't starting with a blank sheet of paper.

What are the stages of process maturity for ITIL?

See ITIL, page 30

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countries. General product availability of IBM TotalStorage DS4300 Express is expected to be 6/17/05. ¹EXP710 expansion unit is not included in the price. MB, GB and TB equal 1,000,000, 1,000,000,000 and 1,000,000,000,000 bytes, respectively, where referring to storage capacity. Actual storage capacity will vary based upon many factors and may be less than stated. Some numbers for storage capacity are given in native mode followed by capacity using data compression technology. IBM, eServer, POWER5, OpenPower, IBM Express Servers and Storage, DB2, POWER and IBM TotalStorage are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. Linux is a registered trademark of Linus Torvalds in the United States and other countries. Linear Tape-Open, LTO, and Ultrium are trademarks of Certance, HP and IBM in the U.S. and other countries. Other company, product, and service names may be trademarks or service marks of others. ©2005 IBM Corporation. All rights reserved.



NET INSIDER
Scott Bradner

Time to dump that MasterCard?

Cards as long as it fixes its security soon.

In other words, MasterCard decided that business as usual was just fine. Discover has not yet made up its mind about what it's going to do.

The representatives of the credit card companies and the CEO of CardSystems also testified at a congressional subcommittee hearing on "Credit Card Data Processing: How Secure Is It?" But nothing much new seems to have come out of the hearing.

The prepared statement of CardSystems CEO John Perry gives the chronology and details of the security breach, and implies that the company will have to close if Visa follows through on its decision to terminate CardSystems' authority to process Visa cards (DocFinder: 8237).

Perry also stated it is clear that

records of at least 239,000 unique credit cards were downloaded, records that had been stored in direct violation of Visa and MasterCard security standards. Visa makes it clear (six times) in a two-page FAQ posted on its site that card holders are not responsible for fraud resulting from these stolen card records, but mail order and Internet merchants could be (DocFinder: 8238).

Individual card holders can be significantly inconvenienced when their cards get stolen, because they may have to argue that they did not make specific purchases and get new cards. As you might expect, a class action lawsuit has been filed (DocFinder: 8239).

I no longer have a MasterCard (my bank switched me to Visa earlier this year), but if I did, I would cancel and shred it. A lot of

people believe that credit card companies have little real incentive to fix security problems because they are insulated from the suffering of the merchants and credit card holders. Visa and AmEx have shown that, at least sometimes, this may be a false assumption. But MasterCard has reinforced the common wisdom.

CardSystems is a company that, by its own admission, purposefully and with full understanding violated MasterCard's rules and put tens of millions of credit card users at risk. If this does not get MasterCard to act, I hate to imagine what would.

CardSystems' Perry expressed surprise at Visa's actions. It seems he would rather face the kind of penalty that the Securities and Exchange Commission normally settles for, an agreement to not be bad in the future. I'm also sur-

prised at Visa's actions — pleasantly so.

Disclaimer: You can't not be surprised at what happens at Harvard — it's so large and diverse. But the university has not expressed an opinion about shredding MasterCards, so the above is my own.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobcom.com.

nww.com

Charge it?

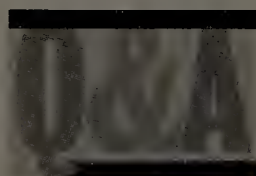
See MasterCard's announcement in keeping with CardSystems, despite its security flaws.

DocFinder: 8236

ITIL

continued from page 27

There are five components: how well the organization defines the process; the people, roles and skills that deliver and support it; how well you can measure it or communicate the outcome of that process; how



well it's integrated to the various other processes; and then how well automated that process is.

What is a good place to start with ITIL?

A good configuration management process, because it forms an underpinning for other processes. It will help IT

departments understand what services they are providing to the organization. Then incident and problem management become high priorities. Then the change management process becomes another key area: now they want to manage that configuration, and audit and control how it changes. Because of some of the other compliance requirements that have come into organizations, IT departments are having to manage the systems and illustrate when there are changes to the configurations or to the systems that support financial systems, for example. Because systems are being used to support those functions, they are having to be audited as well with a more stringent change and configuration process.

How should IT departments install a configuration management database?

Anyone who really embarks on a single configuration repository is being set up for failure. Even if parts succeed, it's a very lengthy process. There is data that comes out of many systems, developed prior to this notion of a service-oriented organization, and IT shops that recognize this and leverage existing investments are most successful. They seek to find a method with which to integrate the data from multiple systems. At the foundation of ITIL and configuration management is the definition of relationships that things have to one another. Looking for technology to help integrate and bring the pieces of data that are most relevant out of those systems is really the most successful approach.

What are the most common obstacles to implementing ITIL?

A lot of folks look at it as a silver bullet that defines specific tasks, such as "if you do this, you will receive this benefit." And it's really not defined at that level. You really have to take it as a best practice and a starting point. And you really have to put it into context for your organization. The organization may be at various levels of maturation so you would experience varying levels of benefit. Folks who take it as a silver bullet definition tend to stumble. The other place IT shops stumble is in thinking of it in end-to-end terms across the IT organization. You really want to better manage and get a better handle on those things that most impact your organization. Those that try to apply this level of management across the board make their systems more costly than is probably necessary.

How do IT governance and management relate?

You have operational management, the day-to-day management of the operational processes, and the efficiencies in handling those silos. And then over the organization are the governing principles of how that organization is run. Who has access or privileges to data that may be financially sensitive, for example. It's difficult to meet the governing principles if you don't have a good operational foundation from which to draw. Vendors need to be aware of the governing principles; those that focus only on the operational data tend to be very siloed. ■

Cisco nabs software firm

BY JAMES NICCOLAI, IDG NEWS SERVICE

Cisco last week announced it has agreed to acquire Sheer Networks, which makes software designed to help service providers and large corporations manage complex networks.

Cisco will pay approximately \$97 million in cash and assumed options for the privately held company. The price might increase by up to \$25 million if Sheer reaches certain development and product milestones, Cisco says.

Sheer makes a product called Sheer DNA, or Dynamic Network Abstraction, which creates a real-time, virtual representation of an actual network. This is supposed to make it easier to manage networks that include multiple domains and equipment from various vendors.

The acquisition will flesh out Cisco's network management offerings for service providers and large businesses, Cisco says. It plans to build on Sheer's technology to develop device, network and service-level management applications that work

Big spender

Cisco's acquisition of Sheer Networks marks its ninth deal this year. Here is a sampling of its latest deals:

Acquired company	Business focus	Month announced
Sheer Networks	Network management	July
Kiss Technology	Home networking	July
NetSift	Security	June
M.I. Secure	Security	June
FineGround Networks	Network acceleration	May
Vihana	ASICs	May

with multi-vendor networks, Cisco says.

Sheer's staff will become part of Cisco's Network Management Technology Group. The company was founded in 1999 and has 100 employees in San Jose and in Petach Tikva, Israel. ■

SERVICE PROVIDERS

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SBC/AT&T merger: Full steam ahead

BY DENISE PAPPALARDO

While a number of hurdles remain, SBC and AT&T are looking at a rather smooth merger process thus far.

As of last week, only seven states that can approve or reject the \$16 billion merger had yet to weigh in. Twelve states require only formal notification about such a merger, and a few such as Texas do not require even that much.

California, the latest state to approve the deal, did include a condition. The state asked for a one-year price freeze for phone services purchased by other service providers from AT&T.

The deal also has received approvals from Australia, Austria, Estonia, Germany, Israel, Norway, Pakistan, Russia and South Africa.

SBC says the merger does not require European Union approval, even though AT&T is a sizable telecom service provider throughout Europe. A formula based on revenue generated in each country determines whether approvals are required, SBC says, and SBC does not meet those thresholds.

AT&T shareholders approved the merger in June, with 98% who voted going along. The carrier says those voters represent more than 70% of all AT&T shareholders.

"We remain confident that the merger will close in a timely manner in line with previous projections," AT&T President and CEO

David Dorman said last week.

Officials from both companies have been saying the merger will close toward year-end or in early 2006.

"We now have cleared regulatory hurdles with two-thirds of the states and foreign governments, and we expect additional approvals in the weeks ahead," Dorman said at a second-quarter earnings press conference. "We continue to work closely with both the FCC and [the Department of Justice] to address their questions and gain all other regulatory approvals as quickly as possible."

SBC echoes Dorman's enthusiasm.

"We are extremely pleased at the pace and progress of merger proceedings. We remain confident of completing the process late this year," says Wayne Watts, associate general counsel at SBC.

While state and foreign approvals have been coming through relatively easily, the

Merger moving along

SBC and AT&T still need approval in seven states, plus the Justice Department and the FCC.

Approvals still lacking in:

Arizona
California
New Jersey
New York
Ohio
Pennsylvania
West Virginia

FCC and Justice Department approvals could include more conditions. In areas where both companies own local infrastructure the federal agencies will likely require the divestiture of assets, says Lisa Pierce a vice president at Forrester Research. "Verizon and MCI will have similar

stipulations," she adds.

But so far, no approval stipulations have been made public by either agency.

Pierce also points out that the Justice Department still does not have an assistant attorney general for its antitrust division. In June, Thomas Barnett became the acting head of the antitrust division. "I don't see how something of this magnitude could get through without a permanent appointment," Pierce says.

Not everyone is thrilled with the pending mergers between SBC and AT&T, and Verizon and MCI. The Consumer Union, Consumer Federation of America, U.S. Public Interest Research Group and the National Association of State Utility Consumer Advocates all have submitted comments to the FCC urging the agency to reject the mergers. These groups believe the mergers will decrease competition and ultimately result in higher telecom costs for consumers. ■

EYE ON THE CARRIER
Johna Till Johnson



IPv6: Time's still not right

conceivably need an IP address.

However, this feature isn't exactly free. Quadrupling the address space dramatically increases the bandwidth required to transport each packet. Sending a 64-byte message, for instance, requires 250% more bandwidth in IPv6 than in IPv4.

Obviously, the overhead increase is greatest for small packets, which make up a minority of the data transferred across today's Internet. But it's still a non-negligible issue given that one of the imagined drivers for IPv6 is the notion of vast networks of tiny sensors at the end of presumably very-low-bandwidth links.

There's the issue of the appropriate next-generation routing architecture. Most folks assume the IPv6 routing will be a simple "scaling up" of today's routing architectures, but some point out that the next-generation Internet will require next-generation routing. And that routing has yet to be envisioned, let alone implemented.

Finally, there's the real question of why a network manager would want directly addressable endpoints. Most companies run firewalls with network address translation (NAT) precisely to cloak their endpoints from the Internet. Moreover, using NATs dramatically increases the number of

addresses available to networks behind the NAT device, which eliminates the one clear driver for IPv6.

Where does the momentum behind IPv6 come from? Two places: First, large organizations and service providers outside the U.S. have been forced by a lack of addresses to adopt IPv6 (when IP addresses were originally allocated, these folks got too few). Second, as noted, the U.S. government has mandated its use.

It remains to be seen how rapidly the deployment will take off. Government mandates have a mixed track record in driving civilian technology deployment (anybody remember GOSIP? How about ISDN?). And it's clear from the government's announcement that they have a limited understanding of how difficult the transition is likely to be, which means the time frame is likely to be extended well beyond 2008.

At some point, IPv6 support may be required to connect with non-U.S. service providers and government offices. But until that happens, no need to switch.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Short Takes

■ **XO Communications** last week said it is expanding its business VoIP service to Minneapolis. The company's XOptions Flex service combines unlimited local and long-distance calling, dedicated Internet access up to 3M bit/sec, and Web hosting for a flat monthly price. In addition to unlimited calling, the service supports dynamic bandwidth allocation, voice virtual private networking, and an administrative Web portal. XOptions Flex is available in 46 other metropolitan areas in the U.S. XO says it has signed up 1,000 customers since rolling out the service three months ago.

It's been more than 10 years since the development of IPv6, yet it's had virtually zero adoption among U.S. enterprise customers and service providers, even though the U.S. Office of Management and Budget recently announced it intends to require support across government agencies for IPv6 by 2008.

Are network managers and service providers sticks-in-the-mud who refuse to get with next-generation technology?

Not at all. The dirty little secret behind IPv6 is that although it's touted as "next-generation" IP, purportedly increasing security and QoS, in reality it adds little to existing IP specs. The security and QoS capabilities built into IPv6 are virtually identical to those added over the years to IPv4.

All that IPv6 really does is increase the number of directly addressable Internet endpoints (to about 340 trillion addresses). This is potentially useful, particularly in a world in which every individual soda can, let alone every vending machine, might



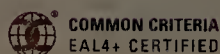
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TECHNOLOGY UPDATE

■ AN INSIDE LOOK AT TECHNOLOGIES AND STANDARDS

ICE helps VoIP traverse firewalls

BY MICHAEL WARD

One of the biggest benefits of VoIP is the ability to supply remote workers with cost-effective telecom access anywhere a broadband connection exists. But ensuring VoIP connectivity often proves challenging because of the number and variety of network address translation firewalls that might exist between a user and a corporate network.

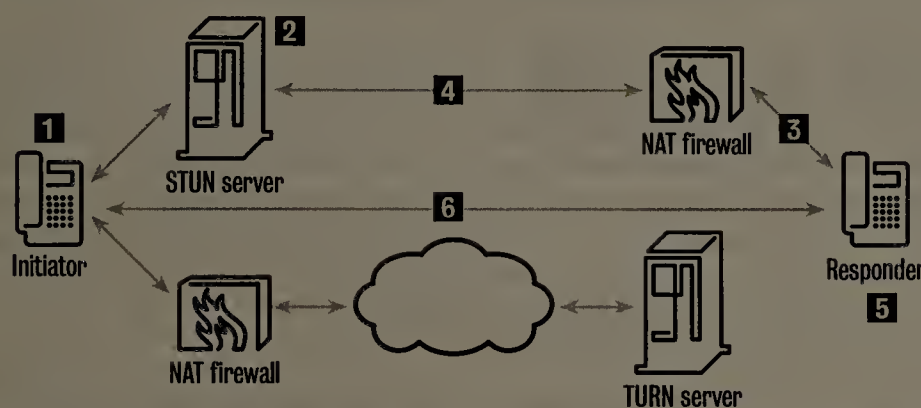
A number of solutions have been proposed to allow SIP-based VoIP calls to cross firewalls, but each class of NAT firewall requires a different technique. To further complicate matters, the various NAT traversal solutions proposed address only one class of NAT device — as an example, the Simple Traversal of UDP through NAT (STUN) technique will not work with symmetric NATs, which are most often deployed in enterprise environments.

The Interactive Connectivity Establishment (ICE) draft, developed by the IETF's MMUSIC working group, provides a framework to unify the various NAT traversal techniques. This enables SIP-based VoIP clients to successfully traverse the variety of firewalls that may exist between a remote user and a network.

ICE defines a standardized method for SIP-enabled clients (or clients based on other multimedia session protocols) to determine what type of NAT firewall(s) exist between clients and determine a set of IP addresses by which clients can establish contact. Using a number of protocols and network connectivity mechanisms, such as STUN, Traversal Using Relay NAT (TURN) and Realm Specific IP (RSIP), ICE

HOW IT WORKS: ICE

The Interactive Connectivity Establishment is designed to let VoIP traffic traverse network address translation firewalls. ICE defines a standard way for clients to determine a set of addresses with which they can communicate.



- 1 Initiator collects all sets of IP addresses on which it can receive traffic from Simple Traversal of UDP through NAT (STUN) and Traversal Using Relay NAT (TURN) servers.
- 2 Initiator sends list of addresses to STUN server; then sends initiate message to responder with a preference-order list of addresses for communication between nodes.
- 3 Responder sends a STUN request to each address provided in the initiate message.
- 4 Initiator sends STUN reply messages back to responder for each request received.
- 5 Responder receives STUN replies. The messages indicate the addresses by which the initiator and responder can communicate.
- 6 The address with the highest preference is used for further communication between the devices.

learns about the network topology in which the clients exist and the various sets of network addresses by which these devices can communicate.

When an ICE-enabled client (the initiator) wishes to communicate with another device (the responder), it first collects as many sets of IP addresses as possible from

sources such as STUN, TURN, RSIP and locally configured addresses that can provide information on addresses where the client can receive IP traffic. A key benefit that ICE provides is the ability to unify the information provided by these various sources of IP address information to create as many paths as possible by which the

endpoints can be reached.

At this point, the initiator client passes this set of addresses to a STUN server and sends an initiate message to the desired responder client. This message contains all the address combinations where the initiator client has learned it can be reached via the earlier discovery process.

When the responder client receives the initiate message, it sends a set of STUN requests back to the initiator for each of these addresses. Typically, at least one STUN request from the responder will reach the initiator because of the network topology and the type of NAT firewall(s) that exist along the path. As the initiator receives these STUN requests, it replies to each in turn. The STUN responses that traverse back to the responder then indicate which addresses the devices can use to communicate. The address with the highest order of preference in the original initiate message is used for further communication between the devices.

By building on a variety of NAT traversal protocols and providing a unifying framework, ICE benefits from the collective functionality of each while avoiding any one protocol's drawback. As such, ICE enables connectivity between devices interconnected through unknown network topologies, and removes the need for manual configuration or creating potential security hazards by manually opening firewalls for VoIP-related traffic.

Ward is director of product line management for Trinity Convergence. He can be reached at mward@trinityconvergence.com.

Ask Dr. Internet By Steve Blass

I've heard a lot about high-speed wireless data services called EV-DO. What is that?

EV-DO stands for Evolution Data Optimized (or Data Only). It is a third-generation Code Division Multiple Access (CDMA) cellular data protocol that can offer broadband wireless connectivity with speeds up to 2M bit/sec. Verizon, Sprint and some regional providers are offering EV-DO services in the U.S. for approximately \$80 per month.

Using an EV-DO-capable phone or PC card and a

laptop, users can connect to the Internet at reasonably high speeds from anywhere they can get a cell phone signal. When EV-DO service coverage is unavailable, the system falls back to the CDMA 1XRTT (Radio Transmission Technology), which features a maximum bandwidth capability of 144K bit/sec.

Even 1xRTT connections are often twice as fast as dial-up. EV-DO connections deliver DSL speeds to mobile devices, and are available or becoming available in and around airports and business centers in

most metropolitan areas. Verizon started its rollout first, but Sprint is making a big push to expand coverage widely during the rest of this year. Both carriers say they plan to provision their entire network coverage areas for EV-DO.

The www.evdoinfo.com Web site is a good source for more EV-DO news and coverage maps.

Blass is a network architect at Change@Work in Houston. He can be reached at drinternet@changeatwork.com.



GEARHEAD INSIDE THE NETWORK MACHINE

Mark Gibbs

More syncing and a back-up solution

This week we have a potpourri of products, a mélange of mechanisms, an assortment of accessories. First is a follow-up to last's week column on syncing PC data using a product called FolderShare. We just took a look at another system that provides a similar service: BelnSync.

BelnSync is in many ways similar to last week's product: It uses a central server to manage the authorization and coordination of connections between machines to be synchronized and peer-to-peer technology to mediate data transfers.

However, unlike FolderShare, BelnSync works only with Windows 2000 SP3+ or XP. Even so, it has one feature that is compelling for Microsoft Outlook users: It will synchronize your Outlook contacts, in-box and sent mail folders (but unfortunately not calendar or notes items), as well as your Internet Explorer favorites.

In the current release of BelnSync (Version 1.5) synchronization is only done at file level; the next release is planned to include support for block-level synchronization.

In our brief testing we found BelnSync to be very easy to set up and fast in operation. Our only complaint is that the user interface is unattractive and cluttered.

There are two editions of BelnSync: the basic version, which supports five shared folders and 10 files synced

per day; and the pro version, which supports 15 shared folders and unlimited file syncs, automatic operation and secure remote browser access to files on your PC for \$60 per year or \$100 for two years.

New from Iomega

Our other topic this week is Iomega's new Rev 35 drive. You'll remember Iomega for its ZIP drives, which were a huge force in exchangeable storage until writeable CD

Rev 35 cartridges are more robust in daily use than tapes, CDs or DVDs, and they have a theoretical shelf life of around 30 years.

and DVD technology came to dominate the market.

Well, Iomega is back with an updated version of exchangeable storage: The Iomega Rev 35 drive. Where the zip drive was a floppy on steroids, the Rev drive is a re-think of hard-disk technology. The Rev 35 is available for Macintosh and PC with USB 2.0/1.1, Firewire and SCSI interfaces for external devices; and serial ATA, ATAPI and SCSI for internal enclosures. There's also an external SCSI-interfaced auto-changer with bar code scanner.

Each Rev 35 cartridge is a 2.5-inch hard-disk platter that

stores 35G bytes (90G bytes compressed) housed in a plastic shell. That works out to about \$1.42 per gigabyte, roughly twice the price per gigabyte of conventional hard-disk drives and about seven times the cost per gigabyte of tape. But Rev 35 cartridges are more robust in daily use than tapes, CDs or DVDs, and they have a theoretical shelf life of around 30 years.

The Rev 35 drive is bundled with Iomega's Automatic Backup Pro software, a desktop back-up solution that performs scheduled or continuous backups to Rev 35 drives, as well as network locations; supports media rotation; can restore an entire system or specific files, or do a point-in-time restore; and includes password protection and AES-based encryption.

The Rev 35's performance depends on what is being backed up. For lots of small files its performance is as good or slightly better than tape, while for large files it operates about half as well as an average Integrated Drive Electronics (IDE) drive.

Pricing starts at \$400 for a USB Rev 35 drive and software with one cartridge. Despite its higher storage cost, relative newness in the market, and the fact that it is a proprietary system, the convenience and robustness of the device and its media make the Rev 35 drive an appealing back-up solution for small offices.

Back up your comments to gearhead@gibbs.com. And check Gearblog at www.networkworld.com/weblogs/gearblog/ for links for this column.



CoolTools

Quick takes on high-tech toys. Keith Shaw

The scoop: i836 phone, by Motorola with Nextel service, about \$150 (after rebates and service plan agreement).

What it is: The i836 is a cell phone packed with business-related features and applications, such as a speakerphone, Nextel's Direct Connect walkie-talkie two-way calling service and voice recorder. The phone also supports Nextel's new Group Connect service, which lets users talk to up to 20 other Nextel users nationwide at the touch of a button. The clamshell-style phone has a sleek design and color --- no bright color faceplates; it's all about the executive gray. Other features include a contact address book with space for up to 600 names, a 65,000-color internal display, Multimedia Messaging Service support, GPS support and voice-activated dialing.

Why it's cool: The i836 includes an angular design and lines that were "inspired by an Italian race car," which gives the phone some curves that feel good in your hand. In addition, the slick colors make it stand out from the crowd. At 3.6 ounces, it won't weigh you down when you throw it in your pocket. Those looking for a cell phone with lots of today's features (except for a camera, which the unit doesn't have) should be pleased.

Some caveats: Interestingly, as a regular mobile phone, the i836 fell short. On several occasions in New York, our calls dropped or had so much static that the person on the other end couldn't tell whether or not we were still on the line. Battery life was unimpressive --- we were drained after only one day of regular usage (a few phone calls, then remaining on awaiting other calls). Navigating around the menus took some practice --- more practice than we'd like with our cell phones. We're still not completely sure we know how to do everything with the phone.

Grade: ★★★ (out of five)



Motorola's i836 phone means business with added features.

The scoop: Disc Stakka CD & DVD Manager, by Imation, about \$150.

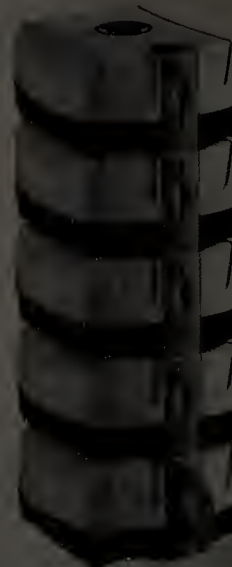
What it is: The Disc Stakka is a hardware device that can store up to 100 circular disks (such as audio CD, CD-ROM and DVD) in a carousel. The device connects via USB to a PC to enable the included OpdiTracker database software. Using the software's search function, users can type in keywords or search for specific file or folder names on a disk, and the Disc Stakka will spin its carousel and pop out the correct disk. If you want to store more than 100 disks, you can stack up to four additional Disc Stakkas, and with a USB hub you can eventually store up to 50,000 disks, Imation says.

Why it's cool: Initially, this appears as a solution searching for a problem, as manually storing a bunch of disks isn't really much of a problem that you need to address with such a large device. The cool part occurred when we started inserting our CDs and DVDs into our PC's disk drive (there's no drive on the Disc Stakka), and the OpdiTracker software automatically scanned the disk and recorded its file and folder name. Once in the database, we could eject the disk from our regular CD/DVD drive and store it in the Disc Stakka.

Some caveats: Adding additional content to the database for each disk is still a manual process (anything beyond disk name and file names). For example, for DVDs you may want to add keywords such as actors, directors or plot to the database entry. The device takes up a big chunk of desktop real estate, as well. The manual process of retrieving the disk and then placing it into our PC's disk drive also bothered us. A device that combines an external CD/DVD optical drive within the storage carousel and database software would really turn our heads.

Grade: ★★★

Shaw can be reached at kshaw@nww.com.



The Disc Stakka allows users to search for a disk by typing in keywords.

In this, the first installment of a 4-part series, we introduce how to build the best IT infrastructure for your business. For a complete guide to building the best IT infrastructure, see page 15.

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State IT execs betting on VoIP

By [Author Name]

As California, Illinois, Texas and a few other states begin to roll out VoIP, they are betting on the technology's ability to reduce costs and improve service. But state IT execs are also betting on VoIP's ability to improve service. In a recent survey, 60% of state IT execs said they plan to use VoIP within the next 12 months. That's up from 40% just a year ago. And the technology's ability to improve service is a key factor in the decision. In a recent survey, 60% of state IT execs said they plan to use VoIP within the next 12 months. That's up from 40% just a year ago. And the technology's ability to improve service is a key factor in the decision.

Is security ripe for outsourcing?

By [Author Name]

As the threat of cyberattacks grows, many IT execs are looking for ways to reduce costs and improve service. One way to do that is by outsourcing security. In a recent survey, 60% of state IT execs said they plan to use VoIP within the next 12 months. That's up from 40% just a year ago. And the technology's ability to improve service is a key factor in the decision.

Colleges crank for test of new security plans

By [Author Name]

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Keeping track of NASCAR

By [Author Name]

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Productivity enhancers or security risks? Two industry insiders debate the issues.

FACE-OFF

Should firms strictly control employee use of mobile devices?

Yes

Mark Lowenstein
Mobile Ecosystem



Companies have done a pretty good job of addressing the most pressing near-term wireless security issues, which are mainly at the network and authentication levels. They've paid a premium for BlackBerry's Triple-DES and Fort Knox-like network operations center. For remote access, most firms use VPN tunnels, which are migrating from SSL- to IPSec-based. Companies also are getting a better handle on wireless LAN security. That's the good news. The bad news is that few firms have taken a holistic look at implementing a more comprehensive company mobile security strategy.

IT managers will have to evolve their mentality over the next couple of years, driven by two major developments: the rise of mobile devices as potential hosts/perpetrators of security problems or threats, and the fact that firms don't have a good handle on how their workers use these phones for consumer applications, such as downloading music and playing games. "Platform phones" (containing an open operating system, based on Palm, Microsoft, Symbian or Linux) and higher-end phones (equipped with cameras, music players, removable storage and so forth) are essentially mini-PCs and will comprise more than a third of the company-installed base by 2008. Think about the sensitive data that's on the average BlackBerry or Treo. Or about how a virus might be spread via Bluetooth.

So what, specifically, should you do? I recommend the following steps:

- Start thinking about mobile device management. Focus on protecting any device that is considered a company asset or contains potentially sensitive data or content.
- Develop mobile policies. Think about how you should manage employees' personal use of their mobile devices. Are you prepared to pay for picture sharing or game downloads? What about access to inappropriate content?
- Start thinking about anti-spam and anti-virus capabilities. Operators have done a pretty good job of blocking most Short Message Service spam, but the onus will increasingly spread to the company with the broadening of message quantity and type. Also, device-based virus protection will become a necessity for any operating system-based phone in the next 12 to 18 months.
- Develop a key point of contact at the carrier. Find out whom to contact, at least as an initial triage point, should a mobile security breach or loss of data occur.

I'm not recommending that companies panic or significantly increase their spending on mobile security solutions. However, security is a broader problem than many firms believe and should be considered more horizontally across the spectrum of wireless applications, devices and usage scenarios. As wireless becomes a mainstream component of non-voice applications, it will have to be brought into the broader corporate IT security framework.

Lowenstein is managing director of Mobile Ecosystem. He can be reached at mloenstein@m-ecosystem.com. To subscribe to his free monthly newsletter, the "Lens on Wireless," go to www.m-ecosystem.com.

No

Lucy McQuilken
Intel Capital



Corporations have legitimate concerns about the latest class of products to connect to the corporate network. Employees are finding more ingenious ways to use devices such as smart phones and PDAs to stay connected, access important data and communicate more effectively. This data access is expensive and typically happening outside the IT security perimeter.

I argue, however, that corporations trying to place excessive control over these devices and the applications that run on them will miss out on significant productivity increases that will accrue to the bottom line.

To gain some perspective, it is helpful to look at an analogous technology: Internet browsers. In the early 1990s, Internet browsers were just gaining widespread adoption. The company where I worked was very concerned about loss of employee productivity and enacted rules to limit employee Web use. On the contrary, what occurred was one of the greatest productivity increases in corporate history. Salespeople could print out maps and find directions to customer sites on MapQuest, marketing people could do research on potential competitors using Google, human resources departments could find potential employees on LinkedIn, and manufacturing employees could buy and sell used oscilloscopes on eBay. The point is that corporations aren't very good at predicting what benefits will come from new technology, but people will gravitate toward things that help them do their job more effectively.

Smart phones and PDAs pose a similar challenge. On the one hand, they represent expensive, unmanaged devices accessing the corporate network, posing unanticipated security threats. On the other hand, just like the browser, they could generate the next big wave of productivity. I believe the latter — and just as we learned from the browser experience — I believe the best approach is to leave it to employees to figure out.

People are ingenious about their own productivity. They will find the best devices and applications, use them in unanticipated ways and spread the word. Of course, there will be the occasional time-waster along the way — think ring tones — but I'll argue that even downloading a ring tone teaches people how to use the technology and will equip them to download things that will make them more productive. As for security, the more diverse the device set, the more operating systems involved, and the

more differentiated the applications, the harder it will be for viruses to spread and networks to be hacked. The money you spend and the experimentation you allow will affect your company in ways you can't anticipate. Trust your people to innovate and let them experiment. In the end, they'll figure it out for you.

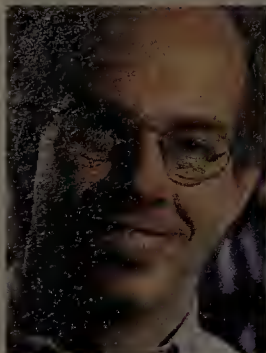
McQuilken is an investment manager at Intel Capital, responsible for investments in early-stage technology companies in the Boston area. McQuilken is co-founder and former CEO of the mobile entertainment company, Groove Mobile (formerly Chaoticom). She can be reached at lucy.mcquilken@intel.com.

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What's your opinion? Log on to NetworkWorld.com and let us know. Face-off authors Mark Lowenstein and Lucy McQuilken will respond to your comments.

DocFinder: 8221



On Technology
John Dix

Privacy bill calls for sweeping reform

In response to a string of prominent data privacy gaffes this past spring, Congress just proposed legislation that will have broad IT implications for many companies.

The Personal Data Privacy and Security Act of 2005, cosponsored by senators Patrick Leahy (D-Vt.) and Arlen Specter (R-Pa.) is a 91-page bill designed "to prevent and mitigate identity theft; to ensure privacy; and to enhance criminal penalties, law enforcement assistance, and other protections."

For network executives, the important stuff is in the section on Privacy and Security of Personally Identifiable Information (pages 37 to 63, see www.networkworld.com, DocFinder: 8240), which spells out who must comply and what they must do.

The bill applies to any business "engaging in interstate commerce that involves collecting, accessing, transmitting, using, storing, or disposing of personally identifiable information in electronic or digital form on 10,000 or more U.S. persons." It does not, however, apply to organizations subjected to the Gramm-Leach-Bliley Act or Health Insurance Portability and Accountability Act (HIPAA).

Companies that fit the profile have to "implement a comprehensive personal data privacy and security program ... that includes administrative, technical, and physical safeguards."

The bill roughly identifies core technical areas that need to be addressed: "Each business entity shall ... control access to systems and facilities containing personally identifiable information, including controls to authenticate and permit access only to authorized individuals; detect actual and attempted fraudulent, unlawful, or unauthorized access ...; [and] protect personally identifiable information during use, transmission, storage, and disposal by encryption or other reasonable means."

What's more, the bill will require companies to do regular vulnerability testing, the frequency and nature of which would be determined by risk assessments that are also required by the bill.

Penalties for violations can be stiff — \$5,000 per violation, per day, and up to \$35,000 more per day if the conditions persist — and companies in violation are also open to civil actions that could lead to punitive damages.

Failure to notify affected individuals and the authorities (the Secret Service and the attorney general in each state affected by a breach) carry even tougher fines: \$5,000 to \$55,000 per day.

While not as far reaching as Gramm-Leach-Bliley or HIPAA, the bill as proposed will have similar consequences, requiring organizations that fit the mold to jump through hoops to comply. As painful and expensive as that may be, it is required medicine for the industry. The breaches have been too catastrophic.

— John Dix
Editor in chief
jdix@nww.com

Opinions

Competing for jobs

Regarding Linda Musthaler's column, "Get used to competing for jobs" (www.networkworld.com, DocFinder: 8225): In response to a recent Stanford graduate's statement that he took a consulting job in order to be "inject[ed] into companies at a higher level," Musthaler asks, "Whatever happened to starting at the bottom and working your way up?"

Musthaler answers this question herself when she states: "The majority of the jobs haven't so much disappeared as moved overseas to places such as India, China and Malaysia."

When you come out of an institution of higher learning, you had better come equipped to jump into a company at a higher level because the lower-level jobs are going overseas. IT management and project management skills currently are of greater value in corporate America.

Just because we may have had a career path that started with a particular job level and worked through the ranks does not mean that is the appropriate path for young graduates today, who must compete for the jobs likely to remain in this country.

Bob O'Connor
Enterprise systems architect
Pennsylvania State University
University Park, Pa.

In May I graduated from college with a major in information systems and minor in business. I agree with Linda Musthaler's point regarding how many students in the U.S. think a job will fall into their hands. Many of my college peers didn't look for an internship or part-time job where they could gain experience in their chosen field. Those who even bothered to work while in college often ended up going for jobs not related to their major because of the pay or ease in scheduling.

I got my first IT-related internship when I was 16 during a summer vacation. The pay wasn't great, but at least I got some experience. While I was still in high school, I got a part-time job in a major local hospital's MIS department, where I volunteered one summer. I stuck with that job until I was a junior in college.

Eventually, I had a summer internship involving Web development. Since that was a flexible position, I was able to pick up another internship that summer, which was related to computer hardware. That ended up being a part-time job for me while I was finishing up my senior year in college.

Looking back, I am grateful for those opportunities, which allowed me to gain experience in various areas of IT. Once I was approaching graduation and was looking for a full-time job, I did not face as many problems as my peers have.

I agree that finding a job nowadays is all about competition, and no one should expect that they will land their dream job right after graduating from college, especially if they have no real-world experience. Many colleges don't emphasize hands-on experience as much as they should.

Samir Kadoo
Baltimore

OK, American programmers are bad, and foreign programmers are good. Large employers treat U.S. programmers poorly and threaten to send jobs overseas, then are surprised when we have a poor outlook and no loyalty.

We may be lots of things, but we're not stupid. Please give us all a break.

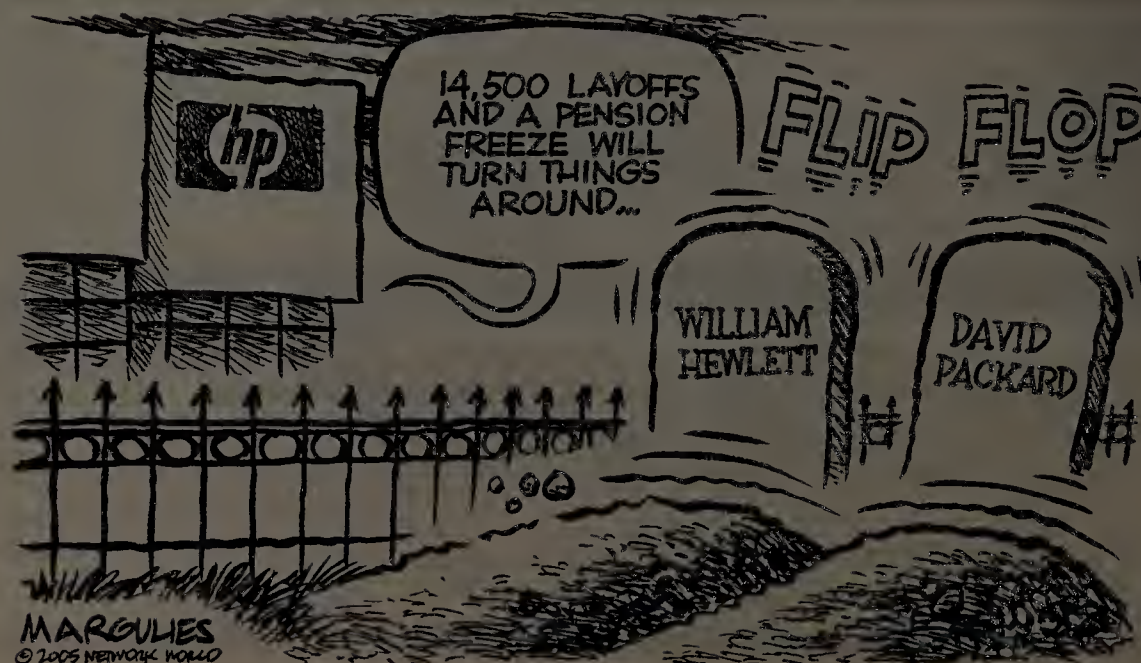
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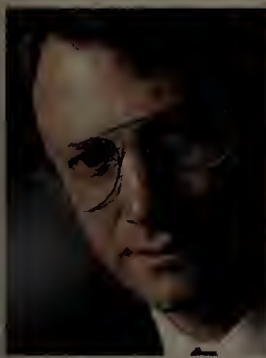
E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

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CYBER SPACES

Daniel Blum

Out of the crossfire, into deployment

As an analyst, I often feel most validated when groups on both sides of an issue are equally upset about a presentation I've given. When in the past both Microsoft and Liberty Alliance complained about my positions on federated identity, I've taken the crossfire as proof that my point of view was balanced.

This year, however, Microsoft liked my presentation at Burton Group's Catalyst Conference, and Liberty Alliance seemed happy enough, as well. All the positive feedback had me wondering: What gives?

Something has changed for the better in the industry. In my speech I said, "The glass of identity interoperability is three-quarters full." Last year, a similar slide read "half full."

The difference today is that the interoperability of vendor products has exceeded anyone's expectations. This spring, when planning a multi-vendor and multi-protocol federation demo for Catalyst, I thought we would be lucky to find a few vendors with multi-protocol hubs to coordinate.

But in the actual demo, 14 identity-management vendors interoperated through multi-protocol hubs; translation and hybrid scenarios involved browsers and Web services. They simulated an "automotive value chain," where dealers and manufacturers use different federation protocols, showing interoperability between Liberty Alli-

ance, Shibboleth, multiple versions of Security Assertion Markup Language (SAML), WS-Federation Passive Profile, WS-Security and the WS-Trust specification, which defines a Security Token Service. The last three are part of the WS family of protocols Microsoft and IBM are developing.

In addition, Microsoft, IBM and partners announced their commitment to contribute WS-Trust, WS-SecurityPolicy and WS-SecureConversation to the Organization for the Advancement of

The interoperability of vendor products has exceeded expectations.

Structured Information Standards (OASIS) in September. This long-awaited move and the successful interoperability demo signify that, for the most part, vendors have moved past arguing about the standards and on to implementing them.

With the standards wars winding down at last, some loose ends remain. Microsoft should still develop full OASIS SAML browser profile support. Liberty Alliance should begin converging some of its advanced work with the WS specifications now going to OASIS. WS-Policy and other specifications from Microsoft and IBM's vendor group should also go to OASIS or another standards body soon.

However, technical interoperability is only half the battle. Business interoperability — establishing relationships of trust between disparate business units or business partners — is the bigger problem. Companies still lack standards for business rules, and audit and accreditation mechanisms.

Still, customers should be encouraged by the improved technical interoperability climate. Include federated identity in the enterprise identity-management architecture and consider how to leverage it to solve identity problems today. Specify SAML 2.0 for browser federation needs and WS-Security for Web services security. Consider WS-Trust security token services for more complex interoperability scenarios.

When running a federation project, users (unlike analysts) don't want to get caught in the crossfire. Keep the trust fabric simple, working with current partners first and turning to industry trust frameworks (such as the Federal E-Authentication Initiative) for broader deployments. Perform risk analysis, protect user privacy and involve stakeholders, such as application owners and general counsel, early in the process.

Blum is senior vice president and research director with Burton Group, an integrated research, consulting and advisory service. He can be reached at danjblum@yahoo.com.



INDUSTRY COMMENTARY

Frank Dzubeck

No room for complacency in net mgmt.

Managing a data network in 2005 is much simpler than in 1995 or even 1985. The tools are more intelligent, and the information available is more accurate and complete. But network managers have let this sophistication cloud over a fundamental trait of corporate networking in 2005 — application fluidity.

In the past, network managers focused on configuration and faults, the hot points where outage problems were diagnosed and resolved. Less demanding issues, such as performance, were addressed by adding bandwidth. Applications that used the network tended to be transaction-based. Performance could be measured, and poor response time always could be blamed on the IT department rather than the network.

Applications today can be a complex mix of data, voice and video traffic, all masked by the fact that they use IP. A corporate network must accommodate real-time voice telephony, instant messaging, video teleconferencing, file transfers, storage backup/recovery and peer-to-peer interaction, in addition to the corporate core-application transaction traffic. Application additions and deletions are fluid in nature and can occur almost instantly. Applications that utilize networks are becoming increasingly intelligent, using sophisticated middleware to enable direct application-to-application communication. This fluid state can only become more volatile with the construction of applications using a service-oriented architecture (SOA) and/or grid technology.

Network performance is again on the front burner. The adage, "If it's not broken, don't fix it," will no longer explain out-of-date revision levels for software in routers and switches, and delays in converting a network from IPv4 to IPv6, which may be required to accommodate new application, server, storage and user demands.

The first change that must occur is a mind-set update: Network managers must realize that performance is an issue even if a network is operating without user complaints. Next, they must evaluate and begin to use a new category of

The first change that must occur is a mind-set update.

test/monitoring/management software that will allow for a readiness assessment of a network before applications are introduced. This is especially true for a VoIP application. This new type of management software is application aware and will look at a network and infrastructure components to identify problem areas before an application is deployed. VoIP is just one example. The same type of software can be used to identify off-site backup/recovery or any other application-specific network performance problems.

Finally, a change is needed in the way network performance management is handled. Performance now must be monitored and managed using a set of predetermined and agreed-upon

metrics. Policy must be established and then translated into network monitoring criteria. In some cases, existing network management system tools can be used to perform monitoring tasks. In other cases, new-application intelligent software must be integrated into the management environment.

This type of software usually has four components — local agent, data gathering, analysis/report generation and repair/correction. A local agent may reside in a client, server, storage and even application software itself. An agent is the key element required to generate and monitor performance metric information, which is then gathered for real-time or future analysis. Finally, manual or autonomic actions can be taken. Today, in almost all cases, manual action is taken after a level of management approval. In the future, software itself can make changes required to meet performance expectations. With new carrier options such as dynamic bandwidth allocation and component update/upgrade technology, which promises zero downtime, a high degree of automatic performance management can be achieved in networks.

Always remember: Applications-aware management must go hand-to-hand with applications-aware networking.

Dzubeck is president of Communications Network Architects, an industry analysis firm in Washington, D.C. He can be reached at fdzubeck@commnetarch.com.

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The life and times of an

RFID

Chip

BY SANDRA GITTLEN

McCarran International Airport in Las Vegas is launching a \$125 million program to embed RFID chips in baggage tags as a way to meet post-Sept. 11 security screening mandates and to improve the accuracy of baggage handling at the airport.

McCarran, which handles more than 68,000 pieces of luggage daily, is committed to buying 60 million RFID tags over the next five years, according to Samuel Ingalls, assistant director of Aviation Information Systems at McCarran.

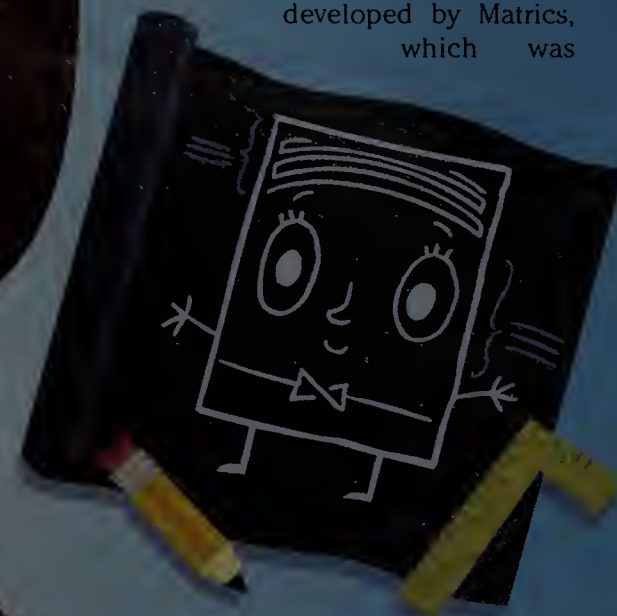
This is the story of one of those chips. We'll call it **... Chippy.**

Designing Chippy

The design of an RFID chip depends on its intended use, says John Shoemaker, vice president of business development for transportation and aviation solutions at Symbol Technologies.

"There are different chips for different applications," he says. "In the process of making the chip, you need to be clear on the architectural design."

McCarran chose an architecture developed by Matrics, which was



acquired by Symbol last year. Chippy will be a Class 0 UHF tag that is read-only and operates in the 900-MHz range. Ingalls says he chose this design because read-only RFID tags offer high levels of security, don't require batteries or line of sight and can be read from up to 25 feet away. Also, the passive tags are less expensive — as little as 20 cents per tag — than their battery-powered counterparts, which can run \$20 to \$100 each.

Shoemaker says the gestation period for an RFID chip can be up to six months or more. "You have to do a pilot and run prototypes," Shoemaker says. Matrics spent more than a year and millions of dollars to develop the passive UHF RFID chip and bring it to production, he says.

Before committing to the chip design and overall project in October of 2004, McCarran put Symbol/Matrics through a several-months-long RFP process. "We had the screening requirement post 9/11 and we became sure pretty early on that that we wanted to move to RFID rather than stay with bar codes," Ingalls says.

ILLUSTRATIONS
BY NOAH Z. JONES

A chip is born

Chippy, like all of its semiconductor brethren, began its life as sand. Symbol contracts with manufacturing plants in China, Japan and Taiwan to create silicon chips. For the



McCarran project, Symbol chose Taiwan Semiconductor Manufacturing Co. (TSMC), one of the largest chip makers in the world.

The chips use radio frequency design techniques — there is such intricate circuitry that it's mind-boggling, Shoemaker says.

The circuit board chips, which are no bigger than a grain of sand, are placed on a semi-conductor wafer. Shoemaker says 30,000 to 60,000 chips are housed on each wafer, which is about 8 inches and circular. He adds that each semiconductor manufacturing plant can churn out billions of chips each week.

Once the wafers are complete, TSMC ships them to Symbol's San Jose facility to be paired with the antenna needed for signaling. Symbol couples the antenna and the chip on a substrate inlay. The chip is applied to the inlay — which is already outfitted with a 1-ounce antenna — using an adhesive.

Chippy measures 2-by-4 inches, although other tags that require a greater read distance could be as large as 4-by-4 inches, Shoemaker says. "If you need to read a tag from more than 25 feet away, even though the tag has no battery and is reflecting a signal, you'll need a bigger inlay or use more powerful signals from the reader." He adds that read ranges up to 50 feet have been demonstrated, but must be approved with a special license from the FCC. Nearly all the current installations are FCC-compliant at 1 watt of power (similar to a cell phone) and do not need a special license.

The next step is to send Chippy to a label maker, where the inlay is embedded in a traditional paper bag tag, complete with the traditional adhesive backing. "Unless you opened up the bag tag and saw the antenna, you'd never know it was there," Shoemaker says.

Ingalls agrees. He says only passengers holding the tags up to the light would be able to see the antenna embedded in the tag. The tags weigh no more than 2 ounces and are equivalent to the 21-inch stock normally used by airlines to label bags.

Chippy gets a job

Once the tags are complete, they are ready to be shipped to the customer — in this case, McCarran. Ingalls says he

leaves the intricate details of how the labels are embedded with RFID chips to Symbol. "We wanted one vendor to take the hit — not deal with a bunch of vendors," he says.

Chippy arrives at the McCarran warehouse in Las Vegas as part of a 175-tag roll of labels. "We actually have set up a schedule with Symbol for them to be delivered on a regular basis over the next few years," Ingalls says.

Ingalls and his team manage all the networks in the airport — airline check-in, baggage handling. He says this centralization makes it easy to roll out the RFID technology airport-wide. Ingalls distributes the new bag tags, printers, RFID readers and other equipment to the airlines, baggage handlers and other necessary users.

Already, Ingalls has started retrofitting check-in agent stations with Vidtronix printers to support the embedded tags. When passengers arrive at the terminal, they place their luggage on the scale as usual.

The agent checks them in, prints out an RFID-enabled tag and affixes it to the luggage.

The read-only chip in the tag features two important pieces of information — the three-letter airport code (in this case, LAS) and a pre-printed 10-digit identifier. Ingalls says having only this information is important for the privacy of passengers. If someone were to try to read the tag, he would not be able to get any personal data about the passenger.

At check-in, that 10-digit identifier is mapped to the passenger in the airport and to the airline tracking systems. The identifier then links the baggage to important information regarding destination, origination point, connections, flights, security status, etc. The tags are also



still printed with the traditional bar code and other visible information for all the systems still using legacy optical technology.

"From the standpoint of populating information into the database, it isn't much different than the bar code," Ingalls says.

Once the agent makes sure that the tag is "live," using an RFID reader, the bag is put on a conveyor belt and sent to security screening.

"Here the bag begins a long, complex journey," Ingalls says.

Chippy goes for a ride

After Sept. 11, airports and airlines were given strict mandates about security screening for luggage. At the time, McCarran's screening was decentralized. To meet the new regulations, the airport is constructing a state-of-the-art centralized security system that will feature six, two-level screening facilities with four miles of conveyors.

"It's a large, complex system broken down into screening nodes," Ingalls says. The screening nodes require 70



different reader and antennae arrays to read the bag tags.

"There is an array of antennas around each segment of baggage conveyor," he says. Within each array there are four antennas around the frame of the conveyor — above, below and on both sides. "The redundancy ensures that no matter which way the antenna is pointing, the tag can be read."

Bags entering the screening facility are subject to different types of security scans, such as bomb detection. The RFID tags enable the bags to navigate the system automatically — with readers at every critical juncture.

The readers can scan a tag that has been crumpled, trapped inside a zipper, or partially destroyed. "We want to make sure the system is tough and impervious to damage," Ingalls says.

The RFID tags offer a 99.8% accuracy read rate, unlike their bar code counterparts, which are only at around 85% accuracy. Bar codes must be line of sight and are useless if marred or blocked in any way. If a bag is upside down or turned around on the conveyor, the bar-coded tag is basically useless. This causes headaches for the airport system, including the potential for bags to miss flights.

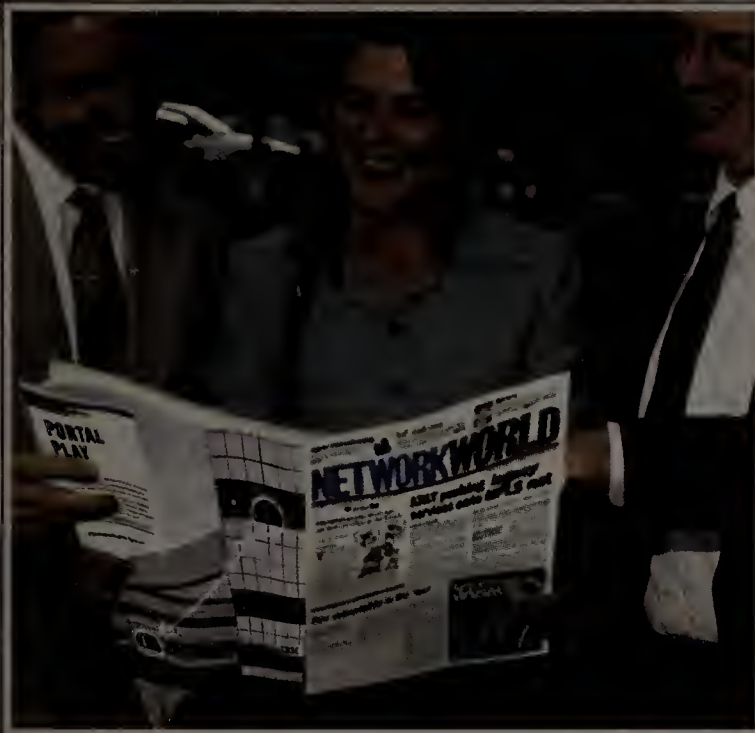
When Chippy enters the security facility, it introduces itself to the system via a reader. This determines that the bag has a unique identifier and is valid. The reader also checks to make sure that the tag is from the McCarran system and not somewhere else.

Once Chippy is matched to the system, the luggage proceeds along the conveyor to various checkpoints. At each, the tag is read and a time-stamp is written back to the database, creating a trail.

"If a bag has been identified for additional screening or manual search, it would be diverted automatically through the conveyor system," Ingalls says. "There is no manual involvement."

When the baggage reaches the end of its individual security screening checklist, it must be reunited with its flight. The tag readers help navigate the bag through the conveyor system to a carousel where the flight baggage

See Chippy, page 46



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CLEAR CHOICE TEST

Google searches for an enterprise space

BY THOMAS POWELL, NETWORK WORLD LAB ALLIANCE

The Google Search Appliance packages up the company's famously accurate technology into an easy-to-use search engine for intranets and public-facing corporate sites. In our Clear Choice test of the GB-1001 model, we found that while the searching and indexing features live up to the Google name, the product lacks polish and advanced management features.

The appliance's honeycomb case caught our eye, but the whimsy wore off as we began to notice occasional unevenness in the appliance. For example, the appliance takes a number of minutes to start up and run its various system checks. To alert you it is done, it plays a little tune. In testing in our server room and at a collocation facility, we couldn't hear the tune over the dull roar of such environments and had to manually probe for the system's state.

The GB-1001 does not provide obvious light indicators or a small LCD screen on the unit. No on-off switch is provided, as the designer likely intended you to go through the proper shutdown procedure. We experienced an unplanned UPS failure, and upon power restoration the box recovered properly once it performed an automated rebuild of its RAID system that lasted several hours. After you do trigger shutdown through the Web administration system provided, you need to be careful not to cut power too early; otherwise, you will have the RAID rebuild wait on your hands.

We also found other polish points lacking. Within the administration system, confirmations of configuration changes didn't appear in a logical place, form fields were slightly misaligned or oddly arranged, warning messages did not appear reliably, help information was too concise or lacked good examples, result output previews didn't always work, and, in some cases, error messages lacked detail.

There were some bright spots, including clear installation documentation, color-coded cables and a built-in DHCP server that allowed us to plug in a laptop and quickly configure the network settings.

Using a Web-based GUI, your first step after installation would likely be to define a search index by indicating starting URLs, URL patterns and file types that should be recorded and discarded by the crawler. (see "How we did it" at www.networkworld.com, DocFinder: 8223).

According to Google, the crawler is capable of indexing 220 types of content. In our test we saw no limitation in

the crawler, and found that the device tended to discover files that we were not aware of in some test data sets.

You will likely want to break up the indexed documents into different collections based upon a URL pattern. The GB-1001 allows for an unlimited number of collections.

The crawler is quite adept at dealing with secured content. It handles Secure-HTTP connections and can negotiate basic authentication, NT LAN Manager authentication, and custom cookie and form-based access. The GB-1001 can crawl content from databases, including Oracle, SQL Server, MySQL, IBM DB2 and Sybase. If you happened upon a data type the crawler cannot access, you can feed



The GB-100's honeycomb case makes an interesting wrapper around Google's tried-and-true search engine, but the company will need to beef up security and management features to better suit it up for enterprise deployment.

it directly to the device in an XML format.

Google does limit its appliances by document count starting with 500,000 for the base unit (for smaller deployments, use the Google Mini; see story at DocFinder: 8224). You can of course increase your license and associated hardware to build out a search infrastructure that could support millions of documents. When you size your appliance be aware that if you plan on doing direct database indexing, Google will count each record as a document, so you might chew up a license very quickly.

One aspect of the crawl process that we especially liked was the diagnostics facility, which was not only useful to understand what the crawler was doing, but it also clearly helped us isolate such indexing problems as broken links, server issues and access-denied problems.

SEARCH APPLIANCE

GOOGLE SEARCH APPLIANCE (GB-1001)

Google 1001 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000

NetResults 4.35

Starting at \$30,000 for 500,000 documents

Pros: Powerful and accurate search; flexible search results; easy to configure and maintain.

Cons: Weak security posture for administration; annoying industrial design and interface design gaps.

The Breakdown

Search	40%	5	Scoring Key: 5: Exceptional 4: Very good 3: Average 2: Below average 1: Consistently subpar
Administration	30%	4	
Security	10%	2.5	
Interface	10%	4	
Installation	10%	5	
Total score		4.35	

The GB-1001 provides a great deal of flexibility for the search page and result listings. Some administrators may be happy to use the page layout helper and modify the logo and basic aspects of the search page. However, most folks will probably want to modify the results to fully integrate it into the look and feel of the site. If you are familiar with XML Stylesheet Language Transformation you can modify a near-3,000-line template that controls just about every aspect of the search form and result. If this doesn't suit you, just use the raw XML returned from the appliance and do whatever you like, including putting it into another system.

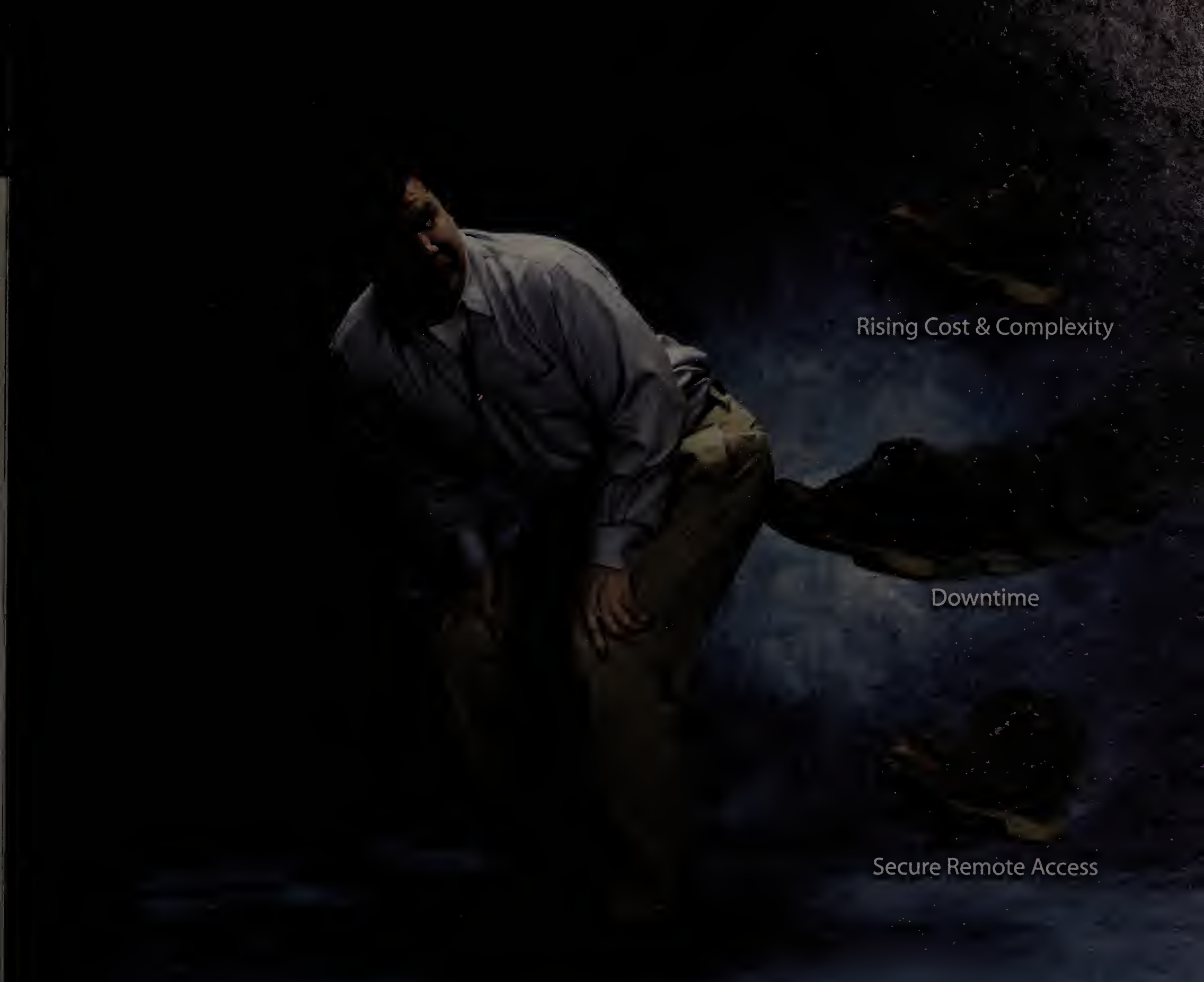
Google's approach is to implement searches in an easy-to-use "black box" fashion, which could place constraints on a private search. You turn the appliance loose, and it ranks based upon the Google algorithm. We were pleased that the accuracy of the test search lived up to what we see in everyday use of the Google Internet search. It easily found buried test phrases and correctly identified primary documents.

The GB-1001 provides features to massage the results; unfortunately, some are a bit limited or not well documented. The most valuable feature for search customization is the KeyMatch configuration, which allows you to define keywords, phrases and exact queries. The latter returns up to three matches, or five if you dig to find out about a setting change. The Synonym setting provides a useful way to suggest alternate search terms triggered by the original query. It is also possible to create filters against the domain in which a document is found, the language a document is written, the file type it was created or the meta tag it was given. The meta tag facility, if carefully applied, can provide a rich system to slice indexed data in a variety of ways: by author, owner, or rating, for example.

Various front-end and search-result features we tested took an unpredictable length of time to register our changes. If you add synonyms, keyword matches or a variety of other template changes, you typically can't see the result right away. You must be patient if you like to tinker.

In terms of performance, the GB-1001 appliances start at

See Google, page 46



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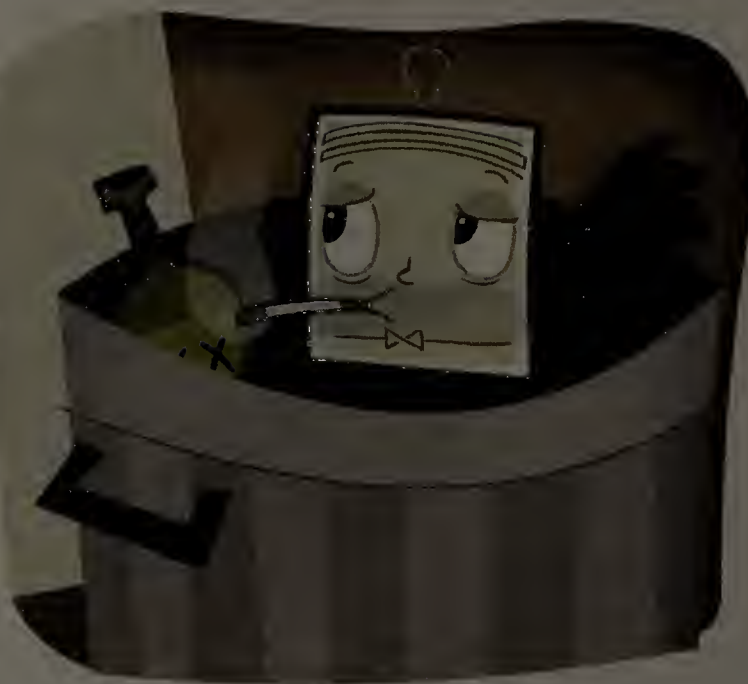
continued from page 42

roster is created. That drop-off point is recorded into the Oracle database so the baggage handlers are aware that it is ready for boarding and the airlines can track the average time it takes a bag to go through screening.

Leaving Las Vegas

For Chippy, this is the end of its usefulness for McCarran Airport. But Ingalls hopes that airlines will take advantage of the embedded chips "upstream" to help passengers track their bags and to speed frequent-flyer check-ins. He also thinks RFID technology eventually will help reduce the minimum connection time that airlines need for baggage to transfer flights.

Already, Ingalls sees the benefits of the RFID technology. The 99.8% accuracy rate of tag reading alone will save the airport and airlines hundreds of thousands of dollars each year. Lost or delayed luggage costs the airlines an average of \$100 per passenger. This price includes courier services to get luggage to the passenger or fees to replace items. The airports also have to pay for baggage handlers to sort out problems when they arise.



Ingalls says even a 10% failure to read bag tags results in 6,800 bags having to be dealt with manually. "That's a four-mile line of bags that someone would have to deal with," he says.

Ingalls adds that he's working alongside McCarran's tenant airlines, which are all actively looking at RFID for their own operations. "We tried to architect a system that is open from a standards standpoint and flexible and scalable. Right now, the chip's usefulness ends at the flight, but in future months and years, airlines will use that chip for all sorts of advances."

And McCarran does not want to be an island in its use of RFID. "Soon there will be millions of [tagged] bags going into other airports," Shoemaker says. "The goal is to connect all those airports to create an expanding capability that will benefit all of aviation globally."

Once the bags leave McCarran, Chippy's fate is unclear. The tag could be on a flight to Boston or Berlin or Bangkok. The luggage could belong to a convention-goer, a gambler, or a couple who tied the knot. Once travelers retrieve their bags at the destination airport, Chippy could be ripped off and tossed away immediately. Or the tag could sit on that piece of luggage in a dark closet for months. Or Chippy might live on in somebody's wedding scrapbook.

Gittlen is a freelance technology editor in Northboro, Mass. She can be reached at sgittlen@charter.net.

Google

continued from page 44

around 300 queries per minute (vs. the Mini's rate of 60 queries per minute [see story, right]). Our test verified that the Google Search Appliance unit was roughly four times faster than the lower-end unit. We were able to increase response time past 1 second per query under heavy load well beyond 300 queries per minute, but we did not see any drop-off that would suggest the device did not perform to specification.

The GB-1001 provides monitoring facilities, including graphs on queries per second, an event log detailing basic system activity, and a device health report. The device is also SNMP-capable and provides MIB for basic monitoring of device health, crawler status, index size and query rates.

The most valuable reports we found outlined the number of searches over time and the common keywords and queries. Many corporate Webmasters pay a surprising lack of attention to search activity, despite the great insight it provides into customer intention, so we are glad to see Google making this data easily available to its appliance customers. For those looking for more than these standard reports provided, the GB-1001 offers search logs in a common log format, useful for crunching in Web log

Google Mini — A cheap GSA?

To many, it would appear that the Google Mini appliance at \$3,000 offers many of the same features as the Google Search Appliance but at about a tenth of the cost. Be forewarned: The Mini is limited in some pretty important areas.

The first difference lies in what Mini can index. The device is limited to only 100,000 documents. In terms of crawling, the Mini uses the same Google algorithm as its big brother and can index the same 220 file types. However, the Mini is not able to negotiate nearly as many authentication schemes as the Google Search Appliance. The Mini is limited to Basic Authentication and NT LAN Manager, so it might not be adequate for some intranet duties. It has no database integration or feed support.

Also, the Mini does not support numerous collections. Instead, it supports sub-collections, which do not easily provide for different result pages. Results with subcollections are calculated differently from using collections under the Google Search Appliance. However, during testing we didn't find the results to be tremendously different, though this might vary depending on the document set you use and the degree of overlap of terms and content.

The Mini is not a terribly fast or fault-tolerant appliance. The

device handles roughly one query per second and you don't get a fault-tolerant RAID array. The Mini's snazzy blue paint job doesn't hide what appears to be a stock 1U clone complete with a CD-ROM drive blocked by its faceplate. Like its big brother, we see fun hardware polish problems, such as the lack of a visible light on the front of the device to indicate the Mini is on.

Finally, the Mini also lacks most of the administration features of its more powerful sibling, including SNMP monitoring and health and performance logging.

However, for all its differences, you'll find the Mini to be similar to the Google Search Appliance. The device provides much the same degree of customization, including KeyMatch, custom output formats, Synonyms, and search result reporting.

Given its limitations the Mini is a likely candidate for public sites and basic intranets. At the price, you can hardly buy a rack-mounted server let alone get a nice turnkey search facility. Even as a proof-of-concept project, the Mini might stand an evaluation by organizations looking to experiment with improved search, and it provides a great introduction to the technology you will find in the more powerful Google Search Appliance.

— Thomas Powell

Global Test Alliance

■ Powell also is a member of the Network World Lab Alliance, a cooperative of the premier testers in the network industry, each bringing to bear years of practical experience on every test. For more Lab Alliance information, including what it takes to become a partner, go to www.networkworld.com/alliance.

analysis or standard reporting systems. We would add in this category some indication of user click rates on various search terms, though with a little bit of work you could collect that data.

Security on the GB-1001 is a mixed bag. Google states emphatically that the box is secured because it comes with a built-in firewall allowing access on permitted ports only. Beyond this lone measure, we found a disturbing security posture in place.

The security setup for the GB-1001's administration environment is weak. It's strange that the device allows you to create users and delegate administrative authority,

but the Web-based administration system does not provide any enforcement on password strength or length, even allowing single-letter passwords. Couple this with the fact that the appliance does not limit password attempts, which means that it's vulnerable to brute-force password-guessing tools. The GB-1001 will note logon failures in its event log, but provides little to work with other than IP address and full-event logging. There are no SSL requirements to access the administrative back end and no restrictions to IP range or domain.

The GB-1001 has its rough edges notably in hardware design, administration and

security. However, the overall ease of use and the power of the Google search algorithm dwarf the limitations of the appliance. For companies looking for a powerful yet easy to administer search facility, the Google Search Appliance gets a fairly high ranking.

Powell is the founder of PINT, a San Diego Web development and consulting firm. He is also the author of numerous books on Web development practices including JavaScript: The Complete Reference and Web Design: The Complete Reference. He can be reached at tpowell@pint.com.

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Pay-as-you-go pricing picks up

As more vendors offer software as a service, be aware of potential pitfalls.

BY DENISE DUBIE

Software as a service can benefit customers looking to bring specific application expertise in-house without committing to a large upfront investment. On the other hand, an alternative licensing model could impede integration with other applications.

Striking a balance between licensed and hosted software and incorporating pay-as-you-go pricing will require network managers to bone up on their contract skills, make sure integration is possible and work with vendors to find the model that best suits their companies.

Offered by vendors such as NetSuite, Salesforce.com and SuccessFactors, SaaS involves hosting all or parts of an application and charging customers on a monthly or annual subscription basis. Pay-as-you-go applies to hardware, too, in which customers pay for the processing power and storage capacity they use.

According to research firm Saugatuck Technology, CIOs are expected to use about 14% of their 2005 IT infrastructure budgets on pay-as-you-go services and 14% of application budgets on software delivered as a service. The trend toward subscribing to software and paying processing and capacity based on what is used is more popular among business executives than IT staff, Saugatuck says.

SaaS "empowers business units by enabling them to buy, deploy and run software without IT involvement. But many business-led SaaS deployments require IT resources in phase two of the rollout when users need to integrate with other systems or do advanced customizations," says Liz Herbert, an analyst with Forrester Research. "Businesses must start involving IT upfront to ensure that the vendor selected has the architecture to meet phase two requirements."

For Ross McKenzie, the IS director at Johns Hopkins Bloomberg School of Public Health in Baltimore, the potential draw to SaaS license models lies in the costs. While McKenzie doesn't currently have such licenses, he says the option to "stretch payments out over a multiyear period" appeals to him. "It would certainly make software more affordable," he says.

Pricing particulars

Pay-as-you-go services offer a glimpse into the utility computing world that EMC, HP, IBM, Sun, Unisys and others envision. Sun, for example, offers straightforward Sun Grid pricing of \$1 per CPU, per hour, and \$1 per gigabyte, per month.

Utility computing services give companies a way to start exploiting new technologies before all the pieces

of an ideal system for automating data centers are deliverable. Such utility computing services may look like traditional outsourcing and application service provider deals because they provide customers with flexibility and require fewer upfront costs. But there are differences, such as paying for what you use instead of a flat fee. Those services, which allow customers to house vendor equipment on site, differ from common outsourcing setups in which the systems are at the service provider.

"These pricing models are one real tangible deliverable from vendors' utility computing plans," says Jeff Kaplan, managing director of Thinkstrategies, a consultancy in Wellesley, Mass. "Most companies can subscribe for software as a service rather than having to look at it as a capital expense."

Forrester Research estimates that the initial cost of a hosted application is about \$336,000 vs. a licensed one at \$440,000. The upfront cost savings in some cases misrepresent the ultimate investment, though. According to Forrester, by the third year of deployment, the cost of a hosted application starts to exceed that of an in-house licensed application. By the fifth year of a deployment, the cumulative cost of a hosted application is estimated at more than \$1.6 million, while the licensed software costs about \$1.4 million annually.

"One downside of the [SaaS] model is it tends to be more expensive in the long run," Forrester's Herbert says.

Striking a balance

While there are noted trade-offs — potential costs and integration worries — industry watchers agree that SaaS models can benefit IT departments.

"It's lower risk and can deliver a fast return on investment," Herbert says. Thinkstrategies' Kaplan agrees: "Packaged applications are difficult to implement and expensive to maintain. SaaS costs can be amortized over time as well."

To start, treat the service rollout as you would on-premise deployments, by determining the business requirements for the service, dealing with the vendor and investigating the degree of customization required for the service. Make sure contracts with software service

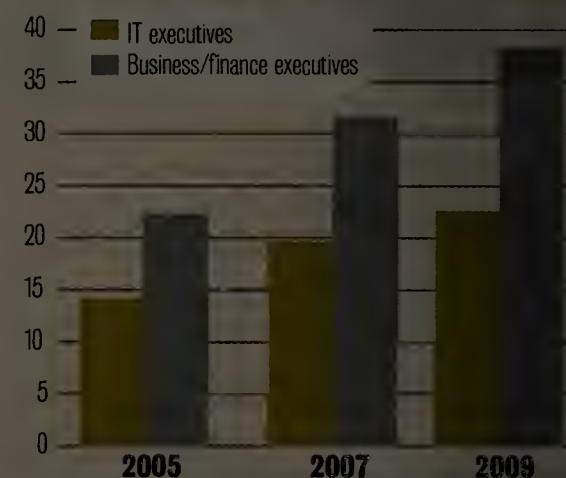
providers protect their data, ensure maximum uptime — with vendor penalties if service-level agreements aren't met — and meet a specific business need.

"If IT managers find it's difficult to integrate, or the degree of customization is high, then SaaS is not the right choice for them," Herbert says. "The trend for SaaS is growing among mid-market customers, but it's not for highly customized and specialized IT shops." ■

Pros and cons of pay-as-you-go

Software-as-a-service pricing models are expected to grow in popularity ...

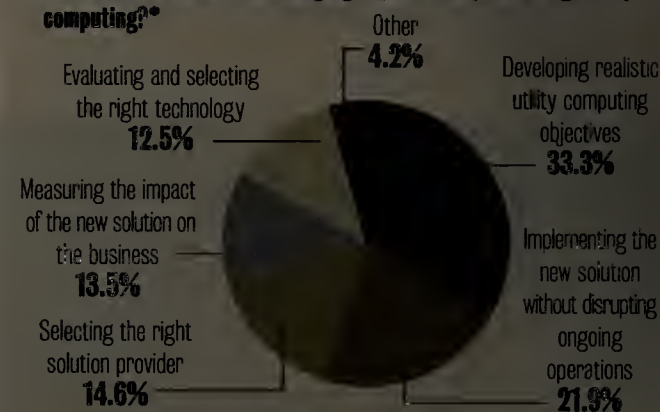
Percent of new IT infrastructure spending that will be delivered on a pay-as-you-go basis 2005-2009



SOURCE: SAUGATUCK TECHNOLOGY, JUNE 2005

... but research shows the alternative to do-it-yourself long-term licenses poses challenges to IT staff.

What will be the most challenging aspect of implementing utility computing?*



*Respondents: 96 enterprise IT professionals
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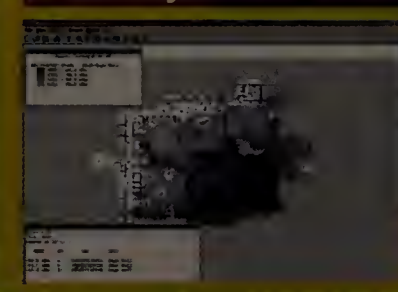
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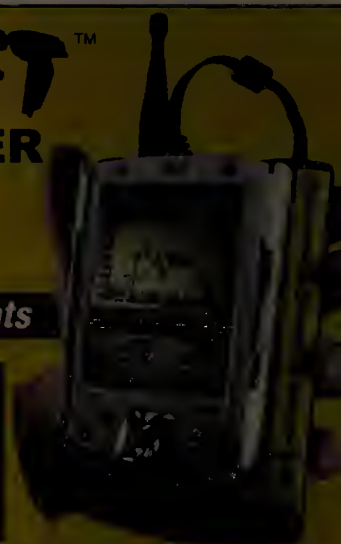
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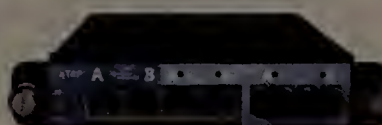
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IPv6

continued from page 1

as the basis for the next-generation Internet.

Nonetheless, with agencies forced to upgrade, government contractors, hardware and software vendors, and service providers will need to make sure their offerings are updated, too. And that could spur adoption in the commercial world.

"If the government deployed IPv6 on a worldwide basis, I believe that would create a great catalyst and wonderful assistance to the promotion and deployment of IPv6 in the commercial sector," says Jim Bound, chair of

organizations that aren't under such pressure are even less convinced. A recent study of 349 government and industry IT decision makers sponsored by Juniper indicated 7% consider the protocol "very important" to achieving their IT goals.

The government's move to IPv6 "is going to resonate with companies, if only from the perspective that large technology-support companies will have to migrate to understand what their customers are doing," says David Lane, a contractor working with the U.S. Department of Veterans Affairs (VA). "If your user base starts using a protocol, then your back end has to be converted . . . so it will trickle down, but I don't think it will be a big bang."

However, it has happened in the past that when the government requires a technology be used by its agencies, the commercial sector falls in line.

"When the [General Services Administration] said everything must be submitted to it in DOS format, that made Microsoft the monopoly," says Joel Coulter, president of consulting firm Joel Coulter and Associates and an IPv6 advocate. Government adoption of technology "is one way to spur market forces. But the key word is transition; the market needs a catalyst for transition."

Once the OMB sets policy that IPv6 must be implemented throughout the federal government by 2008, agencies will have their reason to upgrade — they'll have no choice. But that doesn't mean the IT decision makers in these agencies believe it will be

the best use of their budgets and talent.

Shortly after the OMB revealed its policy plans for IPv6 in late June, Lane's supervisor asked him how the VA should plan its transition to the protocol, because the agency's CIO inquired about the subject. Unfortunately, there's no easy answer. "Saying the federal government is going to convert to IPv6 is like saying today we're all riding bicycles and tomorrow we're going to drive cars. . . . It's a completely new way of doing business," Lane says. "This is one of those things where there is nothing that really compels us to make the change. IP is like water; we all need it to survive, but it's not very sexy."

The OMB has outlined a number of advantages offered by IPv6, including expanded address space (although most U.S. companies and government agencies have found ways around this limitation in IPv4); improved security and information routing; enhanced mobility features; and simplified activation, configuration and operation of networks

Glacial progress

Department of Defense aside, only a handful of the 24 largest federal agencies have done any IPv6 preparation.

Performed an inventory of IPv6-capable equipment:	Performed inventory, established a business case, estimated cost:
Department of State	National Science Foundation
Department of Transportation	
Small Business Administration	

SOURCE: GENERAL ACCOUNTING OFFICE

and services.

Yet in the eyes of many government IT executives, these benefits pale in comparison to the pains associated with upgrading. The biggest hurdle standing in the way of IPv6 adoption among federal government agencies is cost, in part because many agencies don't keep pace with the commercial world when it comes to upgrading to new technology. So while vendors, including Microsoft and Cisco, have allowed for IPv6 in their products for the past few years, agencies might not yet have those versions.

However, the OMB could set aside funds dedicated to IPv6 transitioning, which would mean agencies wouldn't have to take money for upgrading from existing budgets, Coulter says. Such funding would be managed by a separate transition office that would also promote information sharing among agencies.

Other hurdles include training staffers to understand the new protocol, maintaining backward compatibility with IPv4, and ensuring ongoing security while the transition to IPv6 is underway. ■

"If your user base starts using a protocol, then your back end has to be converted."

David Lane, a contractor working with the U.S. Department of Veterans Affairs

the North American IPv6 Task Force, a volunteer group established to promote the adoption and deployment of IPv6. "I believe enterprises are in tune and aware of IPv6 today."

Yet others say if the federal agencies that will be forced to upgrade to IPv6 in less than three years aren't yet sold on the protocol's benefits, private-sector

Fujitsu software to tackle enterprise information

BY MARTYN WILLIAMS, IDG NEWS SERVICE

Fujitsu is developing two applications that could help companies make better use of their data and better handle information flowing into their organizations.

The first is a search tool for the "semantic Web," which refers to the interconnected servers filled with information that is tagged so it can be understood easily by machines. Called the Business Information Navigator, it uses this metadata to spot relationships between documents spread throughout an organization and deliver search results that are more focused than is possible now with a simple text search.

The idea is that with better tagging and more metadata, such as XML and resource description framework, a company could derive much more value from its data. Fujitsu's Navigator attempts to tag documents automatically and works as a search engine for this tagged data.

The software was demonstrated at the recent Fujitsu Forum 2005. During that demo, working with a sample database, a search was performed for "XML." This brought up a number of hits, which were displayed as a spider map, a graphical representation of the results in which their position and size on the graph signifies their importance. Lines between the results showed the strength of the relationships between them. Further clicks allowed the

data to be explored by author or division, so a user could learn quickly the leading authorities on XML within the company and in which divisions they worked.

Fujitsu is testing the system with a domestic financial institution it wouldn't name.

The company's second piece of software is aimed at helping manage the flow of information coming from outside a company and uses the RSS format. Using an RSS reader client and a corporate RSS server, the software is on trial at Fujitsu.

The client can monitor RSS feeds, like any other such reader, but has additional features, all of which are enabled by the server. The first is the ability to tag an item that has appeared in an RSS feed as being of interest to other people in the same workgroup. When this occurs, the information is communicated to the server and is sent to other RSS clients in the workgroup.

The server can also make an RSS feed from any Web page and so enable tracking of changes made to a Web site. To do this, the system examines the Web page and tries to decide, based on position on the page and presence of times or dates, what items are likely to change and what parts of the page can be ignored.

Fujitsu expects both pieces of software to be available within the current fiscal year, which ends the last day next March. ■

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BACKSPIN Mark Gibbs

Stepping in front of the freight train

"There are, and always have been, people who know how to crash the Internet but have so far chosen not to do so."

— Stephen Cobb, Certified Information Systems Security Professional and author of *Privacy for Business*

Not many of us would choose to step in front of a freight train going at full speed, but last week at the Black Hat Briefings conference in Las Vegas a gentleman by the name of Michael Lynn did more or less just that. Roughly two hours after his resignation from the company Internet Security Systems (ISS) he gave an unsanctioned talk on a Cisco router vulnerability (see related story, page 1).

Make no mistake; this was a big deal because this vulnerability is potentially very serious. If some lunatic were to exploit it he could bring down the entire Internet. Sure, go back and read that last sentence again. I'm not exaggerating.

In front of a rapt audience of security wonks, Lynn announced, "I'm not giving you a road map to an exploit; I'm trying to prove to you that I've done it." He then demonstrated the hack — reportedly a buffer overflow exploit — without revealing the exact details.

It is reported that the exploit took all of 5 seconds.

What Lynn demonstrated was that he could remotely access a Cisco router and gain the highest level of access, which gave him the ability to do anything from degrading performance or monitoring traffic to disabling the router completely.

The problem is that because much of the Internet relies on Cisco routers, this is pretty serious stuff. Cisco did fix this issue some months ago, but — of course — many companies have yet to upgrade their router firmware. Lynn said if the router owners "upgrade their firmware, they'll probably be fine."

Now you might be saying, "But we don't rely on Cisco routers, so we're OK... aren't we?" I'm afraid not, my friend, because you do business with other companies (for example, your banks, your partners, your suppliers, your customers) that do use Cisco routers, and if they go offline, then for all intents and purposes so do you. So do we all.

The presentation had apparently previously been approved by Cisco and ISS, but, according to various sources, Cisco got cold feet and wanted the presentation canceled, and ISS acquiesced. But Lynn saw a higher calling, because recently (for the second time) the source code for IOS, the operating system that runs Cisco routers, was stolen.

Lynn asked his audience, "Can anyone think why you

would steal [the source code] if not to hack it?" He continued, "I'm probably about to be sued to oblivion. [But] the worst thing is to keep this stuff secret."

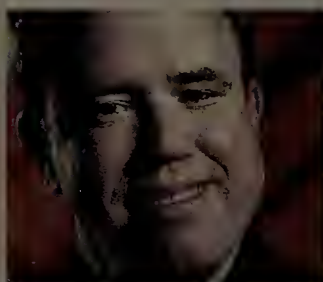
Whether vulnerabilities should be revealed has been a hot topic over the last few years, and that is precisely the reason that Lynn's discussion of the IOS vulnerability was equivalent to him jumping in front of a freight train. His personal train is labeled Cisco and ISS.

As a result of going public with this information Lynn faces litigation from Cisco and ISS. And even the organizers of the Black Hat event (which thought Lynn's presentation was going to be about VoIP) are being sued.

It doesn't take a mental giant to see there is no value in keeping vulnerabilities like this secret. In fact, there's actually a profound, tangible risk that a disaster could well be lying in wait from our ignorance. You know the old saying: "It is what you don't know that hurts you."

Lynn has done us all a great service. What we need are whistle-blower laws for IT to protect people who step forward like this. Unfortunately, when you're in the path of a freight train as Lynn is, it doesn't matter what you know or not. You're going to get hurt.

Do you hear a whistle? Tell backspin@gibbs.com. And check Gearblog at www.networkworld.com/weblogs/gearblog for items mentioned in this column. A special thanks to Stephen Cobb for his input.



Paul McNamara

NETBUZZ News, insights, opinions and oddities

CTO with a bug... well, you know where

It's not every day that a CTO at a well-known company accuses me of exhibiting callous disregard for human life. In fact, I'm fairly certain that what you're about to read constitutes a first.

I am innocent, of course... even though that's what

they all say.

But if you buy into this gentleman's reasoning and apply it to the lowercase network world at large, I am by no means the only suspect party: A significant number of you — yes, you, Mr. and Ms. Network Manager — may need to do a little soul-searching about your attitudes toward... would you believe, WeatherBug?

The background: A May 30 column here (see www.networkworld.com, DocFinder: 8255) discussed ongoing efforts by WeatherBug to shake its image as a network nuisance and sell corporate America on the idea that this popular weather-monitoring and emergency-alert software is also a valuable business tool. The campaign came to my attention in the spring at Interop in Las Vegas, where WeatherBug had employees glad-handing attendees. The column was more milquetoast than broadside, as it consisted almost entirely of WeatherBug executives making their case and me dutifully recounting it.

But I did note that the company has a difficult sales job ahead, especially among IT types, and added: "They could start with my colleague in *Network World's* IT department, who when asked for his thoughts about WeatherBug chewed my ear off for 45 minutes. His beef in a nutshell: WeatherBug has no meaningful purpose on a typical business desktop, and, much like any unauthorized application, consumes resources unnecessarily and runs the risk of causing unanticipated trouble."

That assessment apparently was beyond the pale for WeatherBug CTO and founder Christopher Sloop, who fired back with a blog missive (see DocFinder: 8254). Fair enough, except that Sloop may have gone just a teensy bit overboard.

The headline on his piece: "Dear Network World: What is an employee's life worth?"

My first thought was: "Depends on which employee we're talking about."

But Sloop was clearly in no mood for insouciance. His blog entry begins:

"Let me ask a quick question. Is your life worth 0.003% of your CPU, 10M bytes of RAM and 25 bits per second of bandwidth usage? That is all it will cost your company to install the free version of WeatherBug! 0.003% CPU, 10M bytes of RAM and 25 bits per second of bandwidth to make sure your employees will be quickly alerted in case of a disaster!"

"Clearly Mr. McNamara's IT person is not aware of WeatherBug's ability to alert employees of severe weather, civil emergencies and Homeland Security emergencies. If the technology exists that could save an employee's life and contribute to their safety, why is it not being used on all computer desktops?"

That question brings us back to you folks. After all, I am but a lowly trade-press pundit whose control of desktops begins and ends with the PC in my basement. As for my IT colleague, his ability to save or endanger lives through desktop application management is similarly limited by the fact that *Network World* is a small company.

However, some of you oversee vast swaths of PCs numbering in the thousands and tens of thousands. Are they all up-to-date with the latest version of WeatherBug? ... I didn't think so.

And, let's be honest here, it gets worse. Not only has widespread adoption of this lifesaving application failed to take hold in corporate networks, it is my understanding that many of you have gone so far as to expressly prohibit — prohibit! — the use of WeatherBug in your organizations.

How do you sleep at night?

Oh, all right, I suppose I should lighten up on the guy. He's only standing up for his company, and he's a technologist, not a marketer.

But his ham-handed pitch did remind me of those Michelin tire commercials where a cuddly baby nestled inside a radial is supposed to shame parents into whipping out their credit cards.

"Buy our tires, or kiss your baby goodbye" is no way to sell tires... or software.

Bugged, too? The address is buzz@nww.com.

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